

=&gt; d que 132

L3 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7439-91-0/RN  
 L4 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-05-3/RN  
 L5 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-32-6/RN  
 L6 1 SEA FILE=REGISTRY ABB=ON PLU=ON POTASSIUM/CN  
 L7 205877 SEA FILE=HCAPLUS ABB=ON PLU=ON L3 OR LANTHANUM OR LA  
 L8 269904 SEA FILE=HCAPLUS ABB=ON PLU=ON L4 OR PALLADIUM OR PD  
 L9 666224 SEA FILE=HCAPLUS ABB=ON PLU=ON L5 OR TI OR TITANIUM OR  
 TITAN  
 L10 1846175 SEA FILE=HCAPLUS ABB=ON PLU=ON L6 OR K OR POTASSIUM  
 L11 8129 SEA FILE=HCAPLUS ABB=ON PLU=ON L8 AND L7  
 L12 3563 SEA FILE=HCAPLUS ABB=ON PLU=ON L8 AND L9 AND L10  
 L13 10249 SEA FILE=HCAPLUS ABB=ON PLU=ON L11 OR L12  
 L15 3048 SEA FILE=HCAPLUS ABB=ON PLU=ON L13 AND CAT/RL  
 L16 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L15 AND (WEIGHT OR  
 WT) (A) (PERCENT? OR %)  
 L17 53031 SEA FILE=HCAPLUS ABB=ON PLU=ON L8(L)CAT/RL  
 L18 2686 SEA FILE=HCAPLUS ABB=ON PLU=ON L17 AND L13  
 L20 2 SEA FILE=HCAPLUS ABB=ON PLU=ON "WEIGHT PERCENTAGES"+PFT,N  
 T/CT  
 L22 3 SEA FILE=HCAPLUS ABB=ON PLU=ON L18 AND (WEIGHT OR  
 WT#) (3A) (PERCENT? OR %)  
 L24 3 SEA FILE=HCAPLUS ABB=ON PLU=ON L18 AND 0.05-2.0  
 L25 613 SEA FILE=HCAPLUS ABB=ON PLU=ON L18 AND (0.05 OR 0.06 OR  
 0.07 OR 0.08 OR 0.09 OR 1.0 OR 1.01 OR 1.02 OR 1.03 OR  
 1.04 OR 1.05 OR 1.06 OR 1.07 OR 1.08 OR 1.09 OR 1.1 OR 1.2  
 OR 1.3 OR 1.4 OR 1.5 OR 1.6 OR 1.7 OR 1.8 OR 1.9 OR 2.0)  
 L26 333 SEA FILE=HCAPLUS ABB=ON PLU=ON L25 AND SUPPORT?  
 L27 6 SEA FILE=HCAPLUS ABB=ON PLU=ON L26 AND DEV/RL  
 L28 147 SEA FILE=HCAPLUS ABB=ON PLU=ON L26 AND RACT/RL  
 L29 0 SEA FILE=HCAPLUS ABB=ON PLU=ON L28 AND PERCENT?  
 L30 29 SEA FILE=HCAPLUS ABB=ON PLU=ON L28 AND SUPPORT? CATALYST?  
 L31 44 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L20 OR L22 OR L24  
 OR L27 OR L29 OR L30  
 L32 33 SEA FILE=HCAPLUS ABB=ON PLU=ON L31 AND (1840-2003)/PRY,AY  
 ,PY

=&gt; d 132 1-33 ibib ed abs hitstr hitind

L32 ANSWER 1 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2005:524963 HCAPLUS Full-text  
 DOCUMENT NUMBER: 143:31172  
 TITLE: Exhaust treatment device, and methods for making  
 the same  
 INVENTOR(S): Nunan, John G.  
 PATENT ASSIGNEE(S): USA  
 SOURCE: U.S. Pat. Appl. Publ., 16 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE  |
|------------|------|------|-----------------|-------|
| -----      | ---- | ---- | -----           | ----- |

US 2005129588 A1 20050616 US 2003-734014 20031211  
 <--  
 EP 1541220 A1 20050615 EP 2004-78285 20041203  
 <--

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
 PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU,  
 PL, SK, BA, HR, IS, YU

PRIORITY APPLN. INFO.: US 2003-734014 A 20031211  
 <--

ED Entered STN: 17 Jun 2005

AB An exhaust treatment device, comprises a substrate; a catalyst layer deposited on the substrate, the catalyst layer comprising a first catalyst metal and a second catalyst metal, wherein greater than or equal to about 70 weight% of the first catalyst metal and the second catalyst metal is non-alloyed under alloying conditions, wherein the weight percent is based on a combined weight of the first catalyst metal and the second catalyst metal. The first catalyst metal and the second catalyst metal are different and may be individually selected from the group consisting of platinum, palladium, rhodium, rhenium, iridium, ruthenium, and osmium.

IT 7440-05-3, Palladium, uses

(exhaust treatment device, and methods for making same)

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

FD

IC ICM B01D053-34

ICS F01N003-28

INCL 422177000; 422179000; 422180000; 029890000

CC 59-3 (Air Pollution and Industrial Hygiene)

IT 7439-88-5, Iridium, uses 7440-04-2, Osmium, uses 7440-05-3

, Palladium, uses 7440-06-4, Platinum, uses 7440-15-5,

Rhenium, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses

(exhaust treatment device, and methods for making same)

IT 1344-28-1, Alumina, uses 425386-48-7, Cerium lanthanum

yttrium zirconium oxide (Ce0.25La0.04Y0.06Zr0.65O1.95)

(exhaust treatment device, and methods for making same)

L32 ANSWER 2 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:182546 HCAPLUS Full-text

DOCUMENT NUMBER: 142:261913

TITLE: Mixed metal oxide supported

catalyst composition, catalyst

manufacture, and use in ethane oxidation

INVENTOR(S): Brazdil, James Frank; George, Richard J.; Rosen,

Bruce I.

PATENT ASSIGNEE(S): BP Chemicals Limited, UK

SOURCE: PCT Int. Appl., 27 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE  |
|------------|------|------|-----------------|-------|
| -----      | ---- | ---- | -----           | ----- |

|                        |  |          |                  |            |
|------------------------|--|----------|------------------|------------|
| WO 2005018804          | A1   | 20050303 | WO 2004-GB3302   | 20040730   |
| <--                    |  |          |                  |            |
| W:                     | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW |          |                  |            |
| RW:                    | BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG   |          |                  |            |
| CA 2534872             | A1   | 20050303 | CA 2004-2534872  | 20040730   |
| <--                    |  |          |                  |            |
| EP 1656200             | A1   | 20060517 | EP 2004-743624   | 20040730   |
| <--                    |  |          |                  |            |
| R:                     | AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK   |          |                  |            |
| BR 2004013734          | A  | 20061024 | BR 2004-13734    | 20040730   |
| <--                    |  |          |                  |            |
| CN 1871064             | A  | 20061129 | CN 2004-80030967 | 20040730   |
| <--                    |  |          |                  |            |
| JP 2007502701          | T  | 20070215 | JP 2006-523663   | 20040730   |
| <--                    |  |          |                  |            |
| IN 2006DN00576         | A  | 20070817 | IN 2006-DN576    | 20060203   |
| <--                    |  |          |                  |            |
| US 2006217264          | A1   | 20060928 | US 2006-568767   | 20060221   |
| <--                    |  |          |                  |            |
| PRIORITY APPLN. INFO.: |  |          | US 2003-496668P  | P 20030821 |
| <--                    |  |          |                  |            |
|                        |  |          | WO 2004-GB3302   | W 20040730 |

ED Entered STIN: 04 Mar 2005

AB A catalyst composition for the oxidation of ethane to ethylene and HOAc comprises (i) a support, and (ii) in combination with O, the elements Mo, V and Nb, optionally W and a component Z, which is  $\geq 1$  metals of Group 14; a, b, c, d and e = ratios of Mo, W, Z, V and Nb, resp., such that  $0 < a \cdot 10^{\text{to req. 1}}$ ;  $0 \cdot 10^{\text{to req. 2}}$ ;  $b < 1$  and  $a + b = 1$ ;  $0 \cdot 05 < c \leq 2$ ;  $0 < d \leq 2$ ; and  $0 < e \leq 1$ . A portion of the products may be allowed to react to further produce Et acetate and vinyl acetate. Thus, Mo<sub>60.5</sub>V<sub>32</sub>Nb<sub>7.5</sub>O<sub>x</sub> on silica was modified with 0.33 g-atom ratio Sn for ethane oxidation with good ethylene/acetic acid selectivity and product ratio 1:1.

IT 7439-91-0, Lanthanum, uses 7440-05-3, Palladium, uses 7440-09-7, Potassium, uses 7440-32-6, Titanium, uses (mixed metal oxide supported catalyst for ethane and/or ethylene oxidation to ethylene and acetic acid)

RN 7439-91-0 HCAPLUS

CN Lanthanum (CA INDEX NAME)

La

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

Pd

RN 7440-09-7 HCAPLUS

CN Potassium (CA INDEX NAME)

K

RN 7440-32-6 HCAPLUS

CN Titanium (CA INDEX NAME)

Ti

IC ICM B01J023-28  
ICS B01J023-30; C07C051-225; C07C051-25; C07C005-48; C07C067-05  
CC 35-2 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 45, 67  
ST ethane oxidn catalyst supported molybdenum vanadium niobium tungsten tin; ethylene oxidn catalyst supported mixed metal oxide; acetic acid prodn oxidn catalyst supported mixed metal oxide  
IT Oxidation  
Oxidation catalysts  
(mixed metal oxide supported catalyst for ethane and/or ethylene oxidation to ethylene and acetic acid)  
IT Aluminosilicates, uses  
(mixed metal oxide supported catalyst for ethane and/or ethylene oxidation to ethylene and acetic acid)  
IT Silicates, uses  
(titanosilicates; mixed metal oxide supported catalyst for ethane and/or ethylene oxidation to ethylene and acetic acid)  
IT 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7439-91-0, Lanthanum, uses 7439-95-4, Magnesium, uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-09-7, Potassium, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses 7440-17-7, Rubidium, uses 7440-18-8, Ruthenium, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-24-6, Strontium, uses 7440-25-7, Tantalum, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-36-0, Antimony, uses 7440-39-3, Barium, uses 7440-42-8, Boron, uses 7440-43-9, Cadmium, uses 7440-45-1, Cerium, uses 7440-46-2, Cesium, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses

7440-50-8, Copper, uses 7440-55-3, Gallium, uses 7440-57-5, Gold, uses 7440-58-6, Hafnium, uses 7440-61-1, Uranium, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-69-9, Bismuth, uses 7440-70-2, Calcium, uses 7440-74-6, Indium, uses 7631-86-9, Silica, uses 7723-14-0, Phosphorus, uses 13463-67-7, Titania, uses 13494-80-9, Tellurium, uses 15086-10-9, Atomic tritium, uses (mixed metal oxide supported catalyst for ethane and/or ethylene oxidation to ethylene and acetic acid)

IT 64-19-7P, Acetic acid, preparation 108-05-4P, Vinyl acetate, preparation 141-78-6P, Ethyl acetate, preparation (mixed metal oxide supported catalyst for ethane and/or ethylene oxidation to ethylene and acetic acid)

IT 74-85-1P, Ethylene, preparation (mixed metal oxide supported catalyst for ethane and/or ethylene oxidation to ethylene and acetic acid)

IT 74-84-0, Ethane, reactions 7782-44-7, Oxygen, reactions (mixed metal oxide supported catalyst for ethane and/or ethylene oxidation to ethylene and acetic acid)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 3 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2004:856503 HCAPLUS Full-text  
 DOCUMENT NUMBER: 142:10532  
 TITLE: Preparation of Pd-three way catalyst  
 INVENTOR(S): Yu, Kuen Ku  
 PATENT ASSIGNEE(S): Hyundai Motor Company, S. Korea  
 SOURCE: Repub. Korea, No pp. given  
 CODEN: KRXXFC  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Korean  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| -----                  | ---- | -----    | -----           | -----    |
| KR 235029              | B1   | 19991215 | KR 1996-45364   | 19961011 |
|                        |      |          | <--             |          |
| PRIORITY APPLN. INFO.: |      |          | KR 1996-45364   | 19961011 |
|                        |      |          | <--             |          |

ED Entered STN: 18 Oct 2004

AB Disclosed is a preparation method of palladium (Pd) three way catalyst supported on alumina. The preparing method uses only Pd as main active species for gas treatment of automobile. Palladium catalyst supported on alumina is firstly reduced by titration of 1.66 mL of hydrazine hydrate per one gram of palladium. And then 30-40 g of CeO<sub>2</sub> is added on the supported catalyst in bulky or water-soluble phases. 5-6 g of BaO, 1-2 g of La<sub>2</sub>O<sub>3</sub>, 23.5-33.5 g of acetic acid, and water are mixed to control 4.5 of pH and to prepare the coating slurry. The mixture is milled to prepare 7-9  $\mu$ m of particle size and coated on the surface of honeycomb substrate by the dipping method. The coated honeycomb catalyst is finally dried at 150 °C for 2 h and calcined at 450-550 °C for 4 h.

IT 7440-05-3E, Palladium, processes  
 (preparation of Pd three way catalyst)

RN 7440-05-3 HCAPLUS  
 CN Palladium (CA INDEX NAME)

Pd

IC ICM B01J023-10  
 CC 59-3 (Air Pollution and Industrial Hygiene)  
 Section cross-reference(s): 67  
 ST palladium three way catalyst prepn  
 IT Air pollution  
 (control; preparation of Pd three way catalyst)  
 IT Exhaust gases (engine)  
 (preparation of Pd three way catalyst)  
 IT Oxides (inorganic), processes  
 (preparation of Pd three way catalyst)  
 IT Hydrocarbons, reactions  
 (preparation of Pd three way catalyst)  
 IT Catalysts  
 (three-way; preparation of Pd three way catalyst)  
 IT 1304-28-5, Barium oxide (BaO), processes 1306-38-3, Cerium oxide  
 (CeO2), processes 1312-81-8, Lanthanum oxide (La2O3)  
 1344-28-1, Aluminum oxide (Al2O3), processes  
 (preparation of Pd three way catalyst)  
 IT 7440-05-3E, Palladium, processes  
 (preparation of Pd three way catalyst)  
 IT 64-19-7, Acetic acid, processes 302-01-2, Hydrazine, processes  
 7732-18-5, Water, processes  
 (preparation of Pd three way catalyst)  
 IT 630-08-0, Carbon monoxide, reactions 11104-93-1, Nitrogen oxide,  
 reactions  
 (preparation of Pd three way catalyst)

L32 ANSWER 4 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2004:817833 HCAPLUS Full-text  
 DOCUMENT NUMBER: 141:314770  
 TITLE: Palladium-based catalysts for the  
 chemoselective hydrogenation of acetylene into  
 ethylene  
 INVENTOR(S): Moon, Sang Heup; Kim, Woo Jae; Kang, Jung Hwa;  
 Ahn, In Young  
 PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany  
 SOURCE: PCT Int. Appl., 27 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|---|------|----------|-----------------|----------|
| WO 2004085353   | A2   | 20041007 | WO 2004-EP3263  | 20040326 |
| <--   |      |          |                 |          |
| WO 2004085353   | A3   | 20041223 |                 |          |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,<br>CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,<br>GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,<br>KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,<br>MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD,<br>SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,<br>VC, VN, YU, ZA, ZM, ZW |      |          |                 |          |

RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM,  
 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE,  
 DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT,  
 RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,  
 ML, MR, NE, SN, TD, TG

|   |    |          |                  |             |
|---|----|----------|------------------|-------------|
| KR 2004084071   | A  | 20041006 | KR 2003-18888    | 20030326    |
|   |    |          | <--              |             |
| KR 2004084072   | A  | 20041006 | KR 2003-18890    | 20030326    |
|   |    |          | <--              |             |
| KR 2004084073   | A  | 20041006 | KR 2003-18891    | 20030326    |
|   |    |          | <--              |             |
| KR 2004084171   | A  | 20041006 | KR 2003-19039    | 20030327    |
|   |    |          | <--              |             |
| CA 2519994  | A1 | 20041007 | CA 2004-2519994  | 20040326    |
|   |    |          | <--              |             |
| EP 1611072  | A2 | 20060104 | EP 2004-723597   | 20040326    |
|   |    |          | <--              |             |
| EP 1611072  | B1 | 20071121 |                  |             |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,<br>PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU,<br>PL, SK |    |          |                  |             |
| CN 1764617  | A  | 20060426 | CN 2004-80008120 | 20040326    |
|   |    |          | <--              |             |
| EP 1700836  | A1 | 20060913 | EP 2006-115610   | 20040326    |
|   |    |          | <--              |             |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,<br>PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU,<br>PL, SK |    |          |                  |             |
| JP 2006521197   | T  | 20060921 | JP 2006-504885   | 20040326    |
|   |    |          | <--              |             |
| MX 2005PA08643  | A  | 20051018 | MX 2005-PA8643   | 20050815    |
|   |    |          | <--              |             |
| US 2006229478   | A1 | 20061012 | US 2005-549774   | 20050919    |
|   |    |          | <--              |             |
| PRIORITY APPLN. INFO.:  |    |          | KR 2003-18888    | A 20030326  |
|   |    |          | <--              |             |
|   |    |          | KR 2003-18890    | A 20030326  |
|   |    |          | <--              |             |
|   |    |          | KR 2003-18891    | A 20030326  |
|   |    |          | <--              |             |
|   |    |          | KR 2003-19039    | A 20030327  |
|   |    |          | <--              |             |
|   |    |          | EP 2004-723597   | A3 20040326 |
|   |    |          | WO 2004-EP3263   | W 20040326  |

ED Entered STN: 07 Oct 2004

AB A Pd-based hydrogenation catalyst, further consisting of La, Ti, Nb, K, or Si, is described which has high selectivity for ethylene, even after a low-temperature reduction in the chemoselective hydrogenation of acetylene into ethylene. The catalyst consists essentially of 0.05-2.0 % Pd, based on the supported catalyst, and one or two metals chosen from lanthanum, niobium, titanium, potassium, and silicon, and is prepared by: (1) impregnating a support in an aqueous solution of tetraamine palladium hydroxide followed by drying and calcination; (2) the second and, if necessary, a third metal is impregnated by impregnating the Pd catalyst in the solution of the metal precursor followed by drying and calcination; (3) the catalyst from step (2) is then reduced in hydrogen at 200-600° for 1-5 h.

IT 7433-91-0, Lanthanum, uses 7440-09-7,  
 Potassium, uses 7440-32-6, Titanium, uses

(in palladium-based catalysts for the chemoselective  
hydrogenation of acetylene into ethylene)

RN 7439-91-0 HCAPLUS  
CN Lanthanum (CA INDEX NAME)

La

RN 7440-09-7 HCAPLUS  
CN Potassium (CA INDEX NAME)

K

RN 7440-32-6 HCAPLUS  
CN Titanium (CA INDEX NAME)

Ti

IT 7440-05-3, Palladium, uses  
(palladium-based catalysts for the chemoselective  
hydrogenation of acetylene into ethylene)  
RN 7440-05-3 HCAPLUS  
CN Palladium (CA INDEX NAME)

Pd

IC ICM C07C005-09  
ICS B01J023-44  
CC 35-2 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 23, 48, 67  
IT Alkynes  
(acetylene; palladium-based catalysts for the  
chemoselective hydrogenation of acetylene into ethylene)  
IT Hydrogenation catalysts  
(chemoselective; palladium-based catalysts for the  
chemoselective hydrogenation of acetylene into ethylene)  
IT Calcination  
Drying  
Oxidation  
Reduction  
(in the preparation of palladium-based catalysts for the  
chemoselective hydrogenation of acetylene into ethylene)  
IT Chemoselectivity  
(palladium-based catalysts for the chemoselective

- hydrogenation of acetylene into ethylene)
- IT Alkenes, preparation  
( $\alpha$ -, ethylene; palladium-based catalysts for the chemoselective hydrogenation of acetylene into ethylene)
- IT 7631-86-9, Silica, uses  
(catalyst support; preparation of palladium-based catalysts for the chemoselective hydrogenation of acetylene into ethylene)
- IT 7439-91-0, Lanthanum, uses 7440-03-1, Niobium, uses 7440-09-7, Potassium, uses 7440-21-3, Silicon, uses 7440-32-6, Titanium, uses  
(in palladium-based catalysts for the chemoselective hydrogenation of acetylene into ethylene)
- IT 7732-18-5, Water, uses  
(in the preparation of palladium-based catalysts for the chemoselective hydrogenation of acetylene into ethylene)
- IT 617-86-7, Triethylsilane 694-53-1, Phenylsilane 998-29-8, Tripropylsilane 5593-70-4, Titanium tetrabutoxide 7757-79-1, Potassium nitrate, reactions 7803-62-5, Silane, reactions 14024-64-7 68413-68-3 100587-94-8 144665-26-9  
(in the preparation of palladium-based catalysts for the chemoselective hydrogenation of acetylene into ethylene)
- IT 1333-74-0, Hydrogen, reactions  
(in the preparation of palladium-based catalysts for the chemoselective hydrogenation of acetylene into ethylene)
- IT 7440-05-3, Palladium, uses  
(palladium-based catalysts for the chemoselective hydrogenation of acetylene into ethylene)
- IT 74-85-1P, Ethene, preparation  
(preparation of palladium-based catalysts for the chemoselective hydrogenation of acetylene into ethylene)
- IT 74-86-2, Ethyne, reactions  
(preparation of palladium-based catalysts for the chemoselective hydrogenation of acetylene into ethylene)

L32 ANSWER 5 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:772630 HCAPLUS Full-text

DOCUMENT NUMBER: 141:263161

TITLE: Planar ceramic membrane assembly and reactor system for the oxidation of hydrocarbons

INVENTOR(S): Carolan, Michael Francis; Dyer, Paul Nigel; Wilson, Merrill Anderson; Ohrn, Ted R.; Kneidel, Kurt E.; Peterson, David; Chen, Christopher M.; Rackers, Keith Gerard

PATENT ASSIGNEE(S): Air Products and Chemicals, Inc., USA

SOURCE: Eur. Pat. Appl., 31 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|---|------|----------|-----------------|----------|
| -----   | ---- | -----    | -----           | -----    |
| EP 1459800  | A2   | 20040922 | EP 2004-6537    | 20040318 |
| <--   |      |          |                 |          |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,<br>PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU,<br>PL, SK |      |          |                 |          |
| US 2004186018   | A1   | 20040923 | US 2003-394620  | 20030321 |

|                        |    |          |                  |            |
|------------------------|----|----------|------------------|------------|
| US 7279027             | B2 | 20071009 | <--              |            |
| AU 2004201122          | A1 | 20041007 | AU 2004-201122   | 20040316   |
|                        |    |          | <--              |            |
| ZA 2004002096          | A  | 20050916 | ZA 2004-2096     | 20040316   |
|                        |    |          | <--              |            |
| NO 2004001189          | A  | 20040922 | NO 2004-1189     | 20040319   |
|                        |    |          | <--              |            |
| JP 2004283826          | A  | 20041014 | JP 2004-80652    | 20040319   |
|                        |    |          | <--              |            |
| CN 1550475             | A  | 20041201 | CN 2004-10030134 | 20040319   |
|                        |    |          | <--              |            |
| KR 2004083377          | A  | 20041001 | KR 2004-19098    | 20040320   |
|                        |    |          | <--              |            |
| PRIORITY APPLN. INFO.: |    |          | US 2003-394620   | A 20030321 |
|                        |    |          | <--              |            |

ED Entered STN: 22 Sep 2004

AB A planar ceramic membrane assembly consisting of a dense layer of mixed-conducting multi-component metal oxide material having a 1st and a 2nd side, a porous layer of mixed-conducting multi-component metal oxide material in contact with the 1st side of the dense layer, and a ceramic channeled support layer in contact with the 2nd side of the dense layer. The metal oxide material has the general composition  $(\text{La}_{1-x}\text{Ca}_x)\text{FeO}_{3-\delta}$  wherein  $1.0 > x > 0.5$ ,  $1.1 > \delta > 0.9$ , and  $\delta$  is a number which renders the composition of matter charge neutral. The porous can contain a catalyst, such as Pt, Pd, Rh, Ru, Ir, Au, Ni, Co, Cu, or K. The planar ceramic membrane assembly can be used in a ceramic wafer assembly consisting of a planar ceramic channeled support layer having a 1st and a 2nd side; a 1st dense layer of mixed-conducting multi-component metal oxide material having an inner side and an outer side, wherein the inner side is in contact with the 1st side of the ceramic channeled support layer; a 1st outer support layer consisting of porous mixed-conducting multi-component metal oxide material having an inner side and an outer side, wherein the inner side is in contact with the outer side of the 1st dense layer; a 2nd dense layer of mixed-conducting multi-component metal oxide material having an inner and an outer side, wherein the inner side is in contact with the 2nd side of the ceramic channeled layer; and a 2nd outer support layer consisting of porous mixed-conducting multi-component metal oxide material having an inner side and an outer side, wherein the inner side is in contact with the outer side of the 2nd dense layer. The planar ceramic membrane assembly can be used in a reactor system for the oxidation of hydrocarbons. A heated oxygen-containing oxidant feed gas is passed through the ceramic channeled layer in contact with the dense layer, permeating oxygen ions through the dense layer providing oxygen to the 1st side of the dense layer, contacting a heated hydrocarbon-containing feed gas with the support layer wherein the hydrocarbons diffuse through the support layer, and reacting the hydrocarbons with oxygen. The hydrocarbons are C1-6 hydrocarbons. Hydrocarbon oxidation products can be oxidized hydrocarbons, hydrogen, and water. The planar ceramic membrane can have a coating containing reduction catalysts, such as Pt, Pd, Ru, Au, Ag, Bi, Ba, V, Mo, Ce, Pr, Co, Rh, or Mn.

IT 7440-05-3, Palladium, uses  
(planar ceramic membrane assembly and reactor system for oxidation of hydrocarbons)

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

IC ICM B01D071-02  
 ICS C01B013-02; B01D053-22; B01J019-00; B01J019-24  
 CC 51-11 (Fossil Fuels, Derivatives, and Related Products)  
 Section cross-reference(s): 47, 57, 67  
 IT 119537-57-4, Calcium iron lanthanum oxide  
 (membrane material; planar ceramic membrane assembly and reactor  
 system for oxidation of hydrocarbons)  
 IT 7439-88-5, Iridium, uses 7439-96-5, Manganese, uses 7439-98-7,  
 Molybdenum, uses 7440-02-0, Nickel, uses 7440-05-3,  
 Palladium, uses 7440-06-4, Platinum, uses 7440-09-7,  
 Potassium, uses 7440-10-0, Praseodymium, uses 7440-16-6, Rhodium,  
 uses 7440-18-8, Ruthenium, uses 7440-22-4, Silver, uses  
 7440-39-3, Barium, uses 7440-45-1, Cerium, uses 7440-48-4, Cobalt,  
 uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-62-2,  
 Vanadium, uses 7440-69-9, Bismuth, uses  
 (planar ceramic membrane assembly and reactor system for oxidation of  
 hydrocarbons)

L32 ANSWER 6 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:648439 HCAPLUS Full-text

DOCUMENT NUMBER: 141:174605

TITLE: Oxidation catalyst supported on alumina  
 and its preparation

INVENTOR(S): Rosen, Bruce I.

PATENT ASSIGNEE(S): BP Chemicals Limited, UK

SOURCE: PCT Int. Appl., 25 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO.  | DATE     |
|---|------|----------|------------------|----------|
| WO 2004067167   | A1   | 20040812 | WO 2003-GB5399   | 20031211 |
| <--   |      |          |                  |          |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,<br>CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB,<br>GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,<br>KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX,<br>MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG,<br>SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN,<br>YU, ZA, ZM, ZW |      |          |                  |          |
| RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM,<br>AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE,<br>DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,<br>SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,<br>MR, NE, SN, TD, TG  |      |          |                  |          |
| CA 2513138  | A1   | 20040812 | CA 2003-251338   | 20031211 |
| <--   |      |          |                  |          |
| AU 2003292403   | A1   | 20040823 | AU 2003-292403   | 20031211 |
| <--   |      |          |                  |          |
| EP 1587617  | A1   | 20051026 | EP 2003-767980   | 20031211 |
| <--   |      |          |                  |          |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,<br>PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK  |      |          |                  |          |
| CN 1744946  | A    | 20060308 | CN 2003-80109297 | 20031211 |
| <--   |      |          |                  |          |

|                        |    |          |                 |            |
|------------------------|----|----------|-----------------|------------|
| JP 2006513027          | T  | 20060420 | JP 2004-567363  | 20031211   |
|                        |    |          | <--             |            |
| IN 2005DN02966         | A  | 20061229 | IN 2005-DN2966  | 20050704   |
|                        |    |          | <--             |            |
| US 2006052635          | A1 | 20060309 | US 2005-543095  | 20050722   |
|                        |    |          | <--             |            |
| PRIORITY APPLN. INFO.: |    |          | US 2003-442527P | P 20030127 |
|                        |    |          | <--             |            |
|                        |    |          | WO 2003-GB5399  | W 20031211 |
|                        |    |          | <--             |            |

ED Entered STN: 12 Aug 2004

AB The supported catalyst composition suitable for the oxidation of ethane to ethylene and/or HOAc, and/or the oxidation of ethylene to HOAc, is made by adding catalyst, comprising  $\geq 1$  metal components, on a support comprising  $\alpha$ -alumina, more specifically (a) forming a slurry comprising the  $\geq 1$  metal components, and  $\alpha$ -alumina support particles or an  $\alpha$ -alumina support precursor, (b) spray-drying the slurry, and, optionally, (c) calcining the spray-dried slurry to form the supported catalyst composition. A molybdenum vanadium niobium gold oxide on  $\alpha$ -alumina, and at a nominal metal loading of 50% of the total catalyst weight, had a surface area of 3 m<sup>2</sup>/g and a d. i. 2 g/cm<sup>3</sup>.

IT 7439-91-0, Lanthanum, uses 7440-05-3,  
Palladium, uses 7440-09-7, Potassium, uses  
7440-32-6, Titanium, uses

(oxidation catalysts  $\alpha$ -alumina-supported mixed metal  
for conversion of ethane to ethylene or acetic acid)

RN 7439-91-0 HCAPLUS

CN Lanthanum (CA INDEX NAME)

La

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

Pd

RN 7440-09-7 HCAPLUS

CN Potassium (CA INDEX NAME)

K

RN 7440-32-6 HCAPLUS

CN Titanium (CA INDEX NAME)

Ti

IC ICM B01J021-04  
 ICS B01J023-68; B01J037-00; C07C051-21; C07C053-08  
 CC 35-2 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 45, 67  
 ST alumina supported metal oxidn ethane ethylene acetic acid  
 IT Oxidation catalysts  
     (selective; oxidation catalysts  $\alpha$ -alumina-supported  
     mixed metal for conversion of ethane to ethylene or acetic acid)  
 IT 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7439-89-6,  
 Iron, uses 7439-91-0, Lanthanum, uses 7439-95-4,  
 Magnesium, uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum,  
 uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-04-2,  
 Osmium, uses 7440-05-3, Palladium, uses  
 7440-06-4, Platinum, uses 7440-09-7, Potassium,  
 uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses  
 7440-17-7, Rubidium, uses 7440-18-8, Ruthenium, uses 7440-21-3,  
 Silicon, uses 7440-22-4, Silver, uses 7440-24-6, Strontium, uses  
 7440-25-7, Tantalum, uses 7440-28-0, Thallium, uses 7440-31-5,  
 Tin, uses 7440-32-6, Titanium, uses 7440-33-7,  
 Tungsten, uses 7440-36-0, Antimony, uses 7440-39-3, Barium, uses  
 7440-42-8, Boron, uses 7440-43-9, Cadmium, uses 7440-45-1, Cerium,  
 uses 7440-46-2, Cesium, uses 7440-47-3, Chromium, uses  
 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-55-3,  
 Gallium, uses 7440-57-5, Gold, uses 7440-58-6, Hafnium, uses  
 7440-61-1, Uranium, uses 7440-66-6, Zinc, uses 7440-67-7,  
 Zirconium, uses 7440-69-9, Bismuth, uses 7440-70-2, Calcium, uses  
 7440-74-6, Indium, uses 7723-14-0, Phosphorus, uses 13494-80-9,  
 Tellurium, uses  
     (oxidation catalysts  $\alpha$ -alumina-supported mixed metal  
     for conversion of ethane to ethylene or acetic acid)  
 IT 301182-13-8P, Gold molybdenum niobium vanadium oxide  
     (oxidation catalysts  $\alpha$ -alumina-supported mixed metal  
     for conversion of ethane to ethylene or acetic acid)  
 IT 64-19-7P, Acetic acid, preparation  
     (oxidation catalysts  $\alpha$ -alumina-supported mixed metal  
     for conversion of ethane to ethylene or acetic acid)  
 IT 74-85-1P, Ethylene, preparation  
     (oxidation catalysts  $\alpha$ -alumina-supported mixed metal  
     for conversion of ethane to ethylene or acetic acid)  
 IT 74-84-0, Ethane, reactions  
     (oxidation; oxidation catalysts  $\alpha$ -alumina-supported mixed  
     metal for conversion of ethane to ethylene or acetic acid)  
 IT 1344-28-1, Alumina, uses  
     (support; oxidation catalysts  $\alpha$ -alumina-  
     supported mixed metal for conversion of ethane to ethylene  
     or acetic acid)

L32 ANSWER 7 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:645872 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 141:143027

TITLE: A process for preparation of syngas

INVENTOR(S): Choudhary, Vasant Ramchandra; Uphade, Balu  
 Shivaji; Mammen, Ajit Singh; Rajput, Amarjeet  
 Munshi Ram

PATENT ASSIGNEE(S): Council of Scientific and Industrial Research,  
 India

SOURCE: Indian, 44 pp.

DOCUMENT TYPE: CODEN: INXXAP  
 LANGUAGE: Patent  
 FAMILY ACC. NUM. COUNT: English 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| IN 188329              | A1   | 20020907 | IN 1994-DE632   | 19940520 |
|                        |      |          | <--             |          |
| PRIORITY APPLN. INFO.: |      |          | IN 1994-DE632   | 19940520 |
|                        |      |          | <--             |          |

ED Entered STN: 12 Aug 2004

AB A process for the preparation of syngas using an improved supported catalyst containing oxides of nickel and cobalt, with or without noble metals, represented by the formula:  $AaCoNiOc(x)/Mod(y)/S$ , wherein, A is noble metal element selected from Ru, Rh, Pd, Pt, Ir, Os, or a mixture thereof, Co is cobalt, Ni is nickel, O is oxygen, M is alkaline earth element selected from Be, Mg, Ca or a mixture thereof, a is A/Ni mole ratio in the range of 0 to 0.1, b is Co/Ni mole ratio in the range of about 0.01 to 2.0, c is number of oxygen atoms needed to fulfil the valence requirement of A Co Ni, d is number of oxygen atoms required to fulfil the valence a b requirement of M, S is catalyst support selected from sintered low surface area porous refractory inert solids comprising of alumina, silica, silica-alumina, silicon carbide, zirconia, hafnia or a mixture thereof, y is weight percent loading of MO precoat on the support in the range of 0.3 wt % to 30 wt %, and x is wt % d loading of A Co NiO deposited on the precoat support in the range of 0.3 weight % to 30 a b c weight % which comprises: a) mixing oxygen with carbon dioxide and methane or natural gas at room temperature, b) preheating the steam and the mixture of oxygen, carbon dioxide and methane or natural gas to a temperature between 600°C to 900°C. C) admixing said preheated steam with said preheated mixture of oxygen, carbon dioxide and methane or natural gas. D) passing continuously the resulting admixt. feed over an said supported catalyst containing oxides of nickel and cobalt optionally in presence of noble metals in a fixed bed reactor operated adiabatically or non-adiabatically, maintaining the mole ratio of organic carbon (i.e. carbon in hydrocarbon) to oxygen steam and carbon dioxide in said admixt. feed between 1.8 and 2.8, between 1.1 and 25 and between 2.0 and 50, resp., a gas hourly space velocity of said admixt. feed between 2000 cm<sup>3</sup>.g<sup>-1</sup>.h<sup>-1</sup> and 200,000 cm<sup>3</sup>.g<sup>-1</sup>.h<sup>-1</sup>, a reaction temperature between 650°C and 925°C and pressure between 1 atm and 50 atm such that an effluent is produced containing carbon monoxide and hydrogen in a mole ratio of hydrogen to carbon monoxide between 1.5 and 3.0 and containing less than 4 mol % unreacted methane or natural gas, to produce syngas.

IC ICM B01J023-38

CC 51-12 (Fossil Fuels, Derivatives, and Related Products)

Section cross-reference(s): 67

IT 409-21-2, Silicon carbide, uses 1304-28-5, Barium oxide, uses  
 1305-78-8, Calcium oxide, uses 1306-38-3, Cerium oxide, uses  
 1309-48-4, Magnesium oxide, uses 1312-81-8, Lanthanum  
 oxide 1313-97-9, Neodymium oxide 1313-99-1, Nickel oxide, uses  
 1314-11-0, Strontium oxide, uses 1314-23-4, Zirconia, uses  
 1314-37-0, Ytterbium oxide 1344-28-1, Alumina, uses 7631-86-9,  
 Silica, uses 11104-61-3, Cobalt oxide 12055-23-1, Hafnia  
 12060-58-1, Samarium oxide  
 (process and catalyst for preparation of syngas)

L32 ANSWER 8 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2003:761995 HCAPLUS Full-text  
 DOCUMENT NUMBER: 139:280384

TITLE: Catalyst for flue gas treatment and its application  
 INVENTOR(S): Okamura, Atsushi; Morita, Atsushi; Masaki, Nobuyuki; Sugishima, Noboru; Kobayashi, Motonobu  
 PATENT ASSIGNEE(S): Nippon Shokubai Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| JP 2003275596          | A    | 20030930 | JP 2002-84000   | 20020325 |
|                        |      |          | <--             |          |
| PRIORITY APPLN. INFO.: |      |          | JP 2002-84000   | 20020325 |
|                        |      |          | <--             |          |

ED Entered STN: 30 Sep 2003

AB The catalyst for treating flue gases containing low CO comprises a monolithic porous Ti oxide support loaded with (A)  $\geq 1$  precious metals such as Pt, Pd, Rh, Ru, Ir, and Au 0.05-2.0, S compds. (calculated as S) 0.01-1, and (B)  $\geq 1$  elements from Group I-III such as Na, Li, Mg, Ca, Y, and La 0.1-10 weight%. The porous oxide support is preferably made of TiO<sub>2</sub> and/or Si-Al-Zr-Ti composite oxides. The catalyst is superior in high durability and activity for treating boiler flue gases containing  $\leq 100$  ppm CO.

IT 7439-91-0, Lanthanum, uses 7440-05-3, Palladium, uses 7440-09-7, Potassium, uses  
 (on monolithic porous Ti oxide support; catalyst for flue gas treatment and its application)

RN 7439-91-0 HCAPLUS

CN Lanthanum (CA INDEX NAME)

La

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

Pd

RN 7440-09-7 HCAPLUS

CN Potassium (CA INDEX NAME)

K

IC ICM B01J027-053

ICS B01D053-86; B01J027-055; F01N003-10

CC 59-4 (Air Pollution and Industrial Hygiene)  
 Section cross-reference(s): 67  
 IT 13463-67-7, Titania, uses 176545-39-4, Aluminum silicon  
 titanium zirconium oxide  
 (monolithic porous support; catalyst for flue gas treatment and its  
 application)  
 IT 7439-88-5, Iridium, uses 7439-91-0, Lanthanum,  
 uses 7439-93-2, Lithium, uses 7439-95-4, Magnesium, uses  
 7440-05-3, Palladium, uses 7440-06-4, Platinum,  
 uses 7440-09-7, Potassium, uses 7440-16-6,  
 Rhodium, uses 7440-18-8, Ruthenium, uses 7440-57-5, Gold, uses  
 7440-65-5, Yttrium, uses 7440-70-2, Calcium, uses 7783-20-2,  
 Ammonium sulfate, uses 7803-63-6, Ammonium hydrogen sulfate  
 (on monolithic porous Ti oxide support; catalyst for flue  
 gas treatment and its application)

L32 ANSWER 9 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:638111 HCAPLUS Full-text  
 DOCUMENT NUMBER: 137:172439  
 TITLE: Selective removal of carbon monoxide from hydrogen  
 for use in polymer electrolyte membrane fuel cells  
 Roark, Shane E.; White, James H.  
 INVENTOR(S):  
 PATENT ASSIGNEE(S): Eltron Research, USA  
 SOURCE: U.S. Pat. Appl. Publ., 16 pp., Cont.-in-part of  
 U.S. Ser. No. 468,034.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 3  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE        |
|------------------------|------|----------|-----------------|-------------|
| US 2002114746          | A1   | 20020822 | US 2001-39771   | 20011029    |
| US 6787118             | B2   | 20040907 | <--             |             |
| US 6458741             | B1   | 20021001 | US 1999-468034  | 19991220    |
|                        |      |          | <--             |             |
| PRIORITY APPLN. INFO.: |      |          | US 1999-468034  | A2 19991220 |
|                        |      |          | <--             |             |
|                        |      |          | US 2000-244049P | P 20001027  |
|                        |      |          | <--             |             |

ED Entered STN: 23 Aug 2002

AB Catalyst compns. are provided that are useful in selectively removing carbon monoxide from a hydrogen-containing gas. These catalyst compns. preferably have the formula:  $nN/Ce1-(x+y+z)AxA'yA''zO2-\delta$ , where A, A', A'' are independently selected from the group consisting of: Zr, Gd, La, Sc, Sr, Co, Cr, Fe, Mn, V, Ti, Cu and Ni; N is one or more members of the group consisting of: Pt, Pd, and Au; n is a weight percent between 0 and 25; x, y and z are independently 0 to 0.9; x+y+z is 0.1 to 0.9; and  $\delta$  is a number which renders the composition charge neutral; or  $nN/(MOx)y(CeO2-\delta)1-y$ , where M is  $\geq 1$  member of the group selected from: Zr, Co, Cr, Fe, Mn, V, Ti, Ni and Cu; N is  $\geq 1$  member of the group selected from: Pt, Pd, and Au; n is a weight percent between 0 and 25; y is 0.1 to 0.9; and x and  $\delta$  make the compns. charge neutral.

IC ICM B01J035-02

ICS B01J023-10; B01D053-34; F01N003-00; B01J008-02

INCL 422177000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 49, 67

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

L32 ANSWER 10 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:107897 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 136:170103

TITLE: Cobalt-nickel-molybdenum oxide-based dealkylation  
catalysts with coke suppressing agents for  
dealkylation of C>8-aromatic hydrocarbons

INVENTOR(S): Wu, An-Hsiang; Drake, Charles A.

PATENT ASSIGNEE(S): Phillips Petroleum Company, USA

SOURCE: U.S. Pat. Appl. Publ., 12 pp., Cont.-in-part of  
U.S. Ser. No. 697,767, abandoned.  
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE        |
|------------------------|------|----------|-----------------|-------------|
| -----                  | ---- | -----    | -----           | -----       |
| US 2002016258          | A1   | 20020207 | US 1999-255973  | 19990223    |
|                        |      |          | <--             |             |
| US 6528450             | B2   | 20030304 |                 |             |
| PRIORITY APPLN. INFO.: |      |          | US 1996-697767  | B2 19960829 |
|                        |      |          | <--             |             |

OTHER SOURCE(S): MARPAT 136:170103

ED Entered STN: 10 Feb 2002

AB Hydrodealkylation of C9+-aromatic hydrocarbons (e.g., 1, 2,4-trimethylbenzene) to C6-8-aromatic hydrocarbons (e.g., xylenes) is carried out over an alumina-supported catalyst based on Co, Ni, Rh, Pd, Pt, Cr, and W and containing a coke suppressant selected from SiO<sub>2</sub>, P<sub>2</sub>O<sub>5</sub>, B<sub>2</sub>O<sub>3</sub>, TiO<sub>2</sub>, ZrO<sub>2</sub>, In<sub>2</sub>O<sub>3</sub>, and La<sub>2</sub>O<sub>3</sub> (preferably SiO<sub>2</sub> and P<sub>2</sub>O<sub>5</sub>). The weight ratio of the coke suppressor to the alumina-supported metal oxide is 0.0001-1:1, preferably 0.005-0.5:1; the active metal oxide is typically Co oxide, Ni oxide, and MoO<sub>3</sub>. The C9+-aromatic feedstock can be described by the formula R<sub>q</sub>Ar, in which R = C1-15-hydrocarbonyl, q = 1-5, and Ar is the aryl group; preferred feedstock is C9-12-aromatic hydrocarbon (e.g., trimethylbenzenes, tetramethylbenzenes, propylbenzene, ethyltoluenes, and propyltoluenes). Silica-based coke suppressing agents are preferably incorporated from an organosilicon precursor, such as a siloxane, an organosilicate, and a silylating agent; phosphorus-based coke suppressing agents are incorporated as organic phosphites, phosphates, phosphines, and phosphine oxides.

IT 7440-05-3, Palladium, uses  
(catalysts; cobalt-nickel-molybdenum oxide-based dealkylation  
catalysts with coke suppressing agents for dealkylation of  
C>8-aromatic hydrocarbons)

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

Pd

IC ICM B01J031-00

ICS C07C004-12; C07C004-14; C07C004-18

- INCL 502158000
- CC 51-11 (Fossil Fuels, Derivatives, and Related Products)  
Section cross-reference(s): 25
- IT 1307-96-6, Cobalt oxide, uses 1313-27-5, Molybdenum trioxide, uses  
1313-99-1, Nickel oxide, uses 7440-02-0, Nickel, uses  
7440-05-3, Palladium, uses 7440-06-4, Platinum,  
uses 7440-16-6, Rhodium, uses 7440-33-7, Tungsten, uses  
7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 11104-61-3,  
Cobalt oxide  
(catalysts; cobalt-nickel-molybdenum oxide-based dealkylation  
catalysts with coke suppressing agents for dealkylation of  
C>8-aromatic hydrocarbons)
- IT 1303-86-2, Boron oxide, uses 1312-43-2, Indium oxide (In2O3)  
1312-81-8, Lanthanum oxide (La2O3) 1314-23-4, Zirconium  
dioxide, uses 1314-56-3, Phosphorus pentoxide, uses 7631-86-9,  
Silica, uses 13463-67-7, Titanium dioxide, uses  
(coke-suppressing agent; cobalt-nickel-molybdenum oxide-based  
dealkylation catalysts with coke suppressing agents for  
dealkylation of C>8-aromatic hydrocarbons)
- IT 95-63-6, 1,2,4-Trimethylbenzene 95-93-2,  
1,2,4,5-Tetramethylbenzene 103-65-1, Propylbenzene  
108-67-8, 1,3,5-Trimethylbenzene, reactions  
141-93-5, 1,3-Diethylbenzene 488-23-3, 1  
2,3,4-Tetramethylbenzene 526-73-8, 1,2  
3-Trimethylbenzene 527-53-7, 1,2  
3,5-Tetramethylbenzene 620-14-4, 3-Ethyltoluene 622-96-8,  
4-Ethyltoluene 1074-43-7, 3-n-Propyltoluene 1074-55-1,  
4-n-Propyltoluene  
(feedstocks containing; cobalt-nickel-molybdenum oxide-based  
dealkylation catalysts with coke suppressing agents for  
dealkylation of C>8-aromatic hydrocarbons)
- IT 75-77-4, Trimethylchlorosilane, uses 78-08-0, Vinyltriethoxysilane  
78-10-4, Tetraethylorthosilicate 107-46-0, Hexamethyldisiloxane  
141-62-8, Decamethyltetrasiloxane 429-60-7, (3,3,3-  
Trifluoropropyl)trimethoxysilane 919-30-2,  
Aminopropyltriethoxysilane 1067-25-0, Propyltrimethoxysilane  
1067-53-4, Vinyltris(β-methoxyethoxy)silane 1185-55-3,  
Methyltrimethoxysilane 1343-98-2D, Silicic acid, esters 1719-57-9,  
Chloromethyldimethylchlorosilane 1760-24-3, [γ-(β-  
Aminoethylamino)propyl]trimethoxysilane 2526-62-7,  
Cyanoethyltrimethoxysilane 2530-83-8, (3-  
Glycidoxypropyl)trimethoxysilane 2530-85-0, (γ-  
Methacryloxypropyl)trimethoxysilane 2530-87-2, (3-  
Chloropropyl)trimethoxysilane 2996-92-1, Phenyltrimethoxysilane  
3388-04-3, [β-(3,4-Epoxy cyclohexyl)ethyl]trimethoxysilane  
4420-74-0, (3-Mercaptopropyl)trimethoxysilane 5314-55-6,  
Ethyltrimethoxysilane 7538-45-6, [β-  
Mercaptoethyl]trimethoxysilane 7699-41-4D, Silicic acid (H2SiO3),  
esters 10193-36-9D, Silicic acid, esters 10416-59-8,  
N,O-Bis(trimethylsilyl)acetamide 13435-12-6, N-  
Trimethylsilylacetamide 18156-74-6, N-Trimethylsilylimidazole  
24589-78-4, N-Methyl-N-trimethylsilyltrifluoroacetamide 54925-64-3,  
1H-Imidazole, 1-[(1,1-  
dimethylethyl)dimethylsilyl]- 56958-44-2,  
Diphenyltetramethyldisiloxane  
(silica source; cobalt-nickel-molybdenum oxide-based dealkylation  
catalysts with coke suppressing agents for dealkylation of  
C>8-aromatic hydrocarbons)

L32 ANSWER 11 OF 33 HCAPLUS COPYRIGHT 2007 ACS ON STN  
 ACCESSION NUMBER: 2002:31977 HCAPLUS Full-text  
 DOCUMENT NUMBER: 136:86223  
 TITLE: Process for selectively hydrogenating mixed phase  
 front-end C2-10 unsaturated hydrocarbons  
 containing dienes and alkynes in an olefin  
 production plant  
 INVENTOR(S): Dai, Wei; Liao, Lihua; Zhu, Jing; Guo, Yanlai;  
 Peng, Hui; Mu, Wei; Chen, Shuo  
 PATENT ASSIGNEE(S): Peop. Rep. China  
 SOURCE: U.S. Pat. Appl. Publ., 7 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE       |
|------------------------|------|----------|-----------------|------------|
| US 2002004622          | A1   | 20020110 | US 2001-879489  | 20010613   |
|                        |      |          | <--             |            |
| US 6858766             | B2   | 20050222 |                 |            |
| CN 1330131             | A    | 20020109 | CN 2000-109219  | 20000615   |
|                        |      |          | <--             |            |
| CN 1109090             | B    | 20030521 |                 |            |
| PRIORITY APPLN. INFO.: |      |          | CN 2000-109219  | A 20000615 |
|                        |      |          | <--             |            |

ED Entered STN: 11 Jan 2002

AB A process is described for selectively hydrogenating C2-10 (un)saturated hydrocarbons (i.e., acetylenes and diolefins) at the upstream side of a front depropanizer or front deethanizer in an olefin (e.g., ethylene) production plant. After passing through a mixed-phase hydrogenation reactor so as to selectively hydrogenate, the olefin plant process stream passes to a front depropanizer or front deethanizer. This process is able to selectively hydrogenate C2-C10 greater unsatd. hydrocarbons (including acetylene), to reduce the amount of equipment, the amount of equipment fouling, and energy consumption; a process flow diagram is presented.

IT 7439-91-0, Lanthanum, uses 7440-05-3,  
 Palladium, uses  
 (catalysts for chemoselectively hydrogenating mixed phase front-end C2-10 unsatd. hydrocarbons containing dienes and alkynes in an olefin production plant)

RN 7439-91-0 HCAPLUS

CN Lanthanum (CA INDEX NAME)

La

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

Pd

IC ICM C07C005-03  
 INCL 585260000; X58-525.9; X58-526.2  
 CC 35-2 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 23, 47, 48, 67  
 IT Molecular sieves  
 (supports; catalysts for chemoselectively  
 hydrogenating mixed phase front-end C2-10 unsatd. hydrocarbons  
 containing dienes and alkynes in an olefin production plant)  
 IT 7439-91-0, Lanthanum, uses 7439-93-2, Lithium,  
 uses 7439-95-4, Magnesium, uses 7439-98-7, Molybdenum, uses  
 7440-05-3, Palladium, uses 7440-06-4, Platinum,  
 uses 7440-09-7, Potassium, uses 7440-18-8, Ruthenium, uses  
 7440-22-4, Silver, uses 7440-23-5, Sodium, uses 7440-33-7,  
 Tungsten, uses 7440-36-0, Antimony, uses 7440-38-2, Arsenic, uses  
 7440-39-3, Barium, uses 7440-45-1, Cerium, uses 7440-50-8, Copper,  
 uses 7440-57-5, Gold, uses 7440-62-2, Vanadium, uses 7440-66-6,  
 Zinc, uses 7440-69-9, Bismuth, uses 7440-70-2, Calcium, uses  
 12795-30-1, Nickel arsenide  
 (catalysts for chemoselectively hydrogenating mixed phase front-end  
 C2-10 unsatd. hydrocarbons containing dienes and alkynes in an olefin  
 production plant)  
 IT 74-86-2, Acetylene, reactions 74-99-7, Propyne 106-99-0, 1  
 ,3-Butadiene, reactions 208666-46-0, Butyne  
 (process for selectively hydrogenating mixed phase front-end C2-10  
 unsatd. hydrocarbons containing dienes and alkynes in an olefin production  
 plant)  
 IT 1314-13-2, Zinc oxide, uses 1332-29-2, Tin oxide 1344-28-1,  
 Alumina, uses 7631-86-9, Silica, uses 13463-67-7, Titania, uses  
 (support; catalysts for chemoselectively  
 hydrogenating mixed phase front-end C2-10 unsatd. hydrocarbons  
 containing dienes and alkynes in an olefin production plant)  
 REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L32 ANSWER 12 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2001:269139 HCAPLUS Full-text  
 DOCUMENT NUMBER: 134:300010  
 TITLE: Catalyst for automotive exhaust gas treatment  
 INVENTOR(S): Yamazaki, Kiyoshi; Takahashi, Naoki; Hachisuka,  
 Ichiro; Sofue, Yuichi  
 PATENT ASSIGNEE(S): Toyota Central Research and Development  
 Laboratories, Inc., Japan; Toyota Motor Corp.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| JP 2001104784          | A    | 20010417 | JP 1999-285103  | 19991006 |
|                        |      |          | <--             |          |
| PRIORITY APPLN. INFO.: |      |          | JP 1999-285103  | 19991006 |
|                        |      |          | <--             |          |

ED Entered STN: 17 Apr 2001

AB The title catalyst comprises  $\geq 1$  Pt-group metals and crystalline Sr compds.  
 (average grain diameter  $\leq 40$  nm) on monolithic supports mainly containing ZrO<sub>2</sub>  
 and/or LaO<sub>2</sub>-ZrO<sub>2</sub>. The amount of the Sr compound on ZrO<sub>2</sub> supports is

preferably controlled at 0.05- 2.0/L. The catalyst is superior in thermal stability at  $\geq 700^\circ$  and high denitration efficiency at various temperature range.

IT 7440-05-3, Palladium, uses  
(on zirconia support; catalyst for automotive exhaust gas treatment)  
RN 7440-05-3 HCAPLUS  
CN Palladium (CA INDEX NAME)

Pd

IC ICM B01J023-58  
ICS B01D053-94; B01J035-02  
CC 59-3 (Air Pollution and Industrial Hygiene)  
Section cross-reference(s): 67  
ST catalyst zirconia support automotive exhaust gas denitration;  
strontium compd platinum catalyst lanthanum zirconia support  
IT 1314-23-4, Zirconia, uses 56321-46-1, Lanthanum oxide  
(LaO2)  
(monolithic support loaded with Pt-group metals and crystalline Sr compds.; catalyst for automotive exhaust gas treatment)  
IT 7439-88-5, Iridium, uses 7440-05-3, Palladium,  
uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses  
(on zirconia support; catalyst for automotive exhaust gas treatment)

L32 ANSWER 13 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:154390 HCAPLUS Full-text

DOCUMENT NUMBER: 134:313571

TITLE: Effect of preparation procedures on the activity  
of supported palladium/  
lanthanum methanol decomposition catalysts

AUTHOR(S): Mul, G.; Hirschon, A. S.

CORPORATE SOURCE: Department of Chemistry and Chemical Engineering,  
SRI-International, Menlo Park, CA, 94025, USA

SOURCE: Catalysis Today (2001), 65(1), 69-75

CODEN: CATTEA; ISSN: 0920-5861

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 05 Mar 2001

AB A series of palladium catalysts promoted with lanthanum were prepared on a silica support and the activities of these catalysts examined for the decomposition of methanol into CO and H<sub>2</sub>. The preparation procedure and the La<sub>2</sub>O<sub>3</sub>/Pd weight ratio of these Pd/La<sub>2</sub>O<sub>3</sub>/SiO<sub>2</sub> catalysts (5 weight% Pd) was found to be important for high catalytic activities. If Pd is deposited after La<sub>2</sub>O<sub>3</sub> using a precipitation procedure, the methanol decomposition activity increases up to a La<sub>2</sub>O<sub>3</sub>/Pd weight ratio of 1.0. The optimized weight ratio for the methods of co-precipitation and co-impregnation were found to be 0.8 and 0.5, resp. Relatively low activities are obtained if a sequential procedure with La<sub>2</sub>O<sub>3</sub> deposition in the final step is applied. The effect of the preparation procedure and La<sub>2</sub>O<sub>3</sub>/Pd weight ratio on activity of the resulting catalysts can be explained by: (i) the amount of Pd particles in contact with La<sub>2</sub>O<sub>3</sub> moieties, pos. affecting the activity, and (ii) the extent of coverage of Pd particles by La<sub>2</sub>O<sub>3</sub> patches, neg. affecting the activity.

IT 7440-05-3, Palladium, uses

(effect of preparation procedures on the activity of supported  
palladium/lanthanum methanol decomposition catalysts)

RN 7440-05-3 HCAPLUS  
CN Palladium (CA INDEX NAME)

Pd

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 67, 72  
ST fuel cell methanol decompn catalyst; palladium lanthana  
catalyst methanol decompn  
IT Decomposition catalysts  
Fuel cells  
(effect of preparation procedures on the activity of supported  
palladium/lanthanum methanol decomposition catalysts)  
IT 1312-81-8, Lanthanum oxide 7440-05-3,  
Palladium, uses 7631-86-9, Silica, uses  
(effect of preparation procedures on the activity of supported  
palladium/lanthanum methanol decomposition catalysts)  
IT 630-08-0, Carbon monoxide, formation (nonpreparative)  
(effect of preparation procedures on the activity of supported  
palladium/lanthanum methanol decomposition catalysts)  
IT 67-56-1, Methanol, uses  
(effect of preparation procedures on the activity of supported  
palladium/lanthanum methanol decomposition catalysts)  
IT 1333-74-0P, Hydrogen, preparation  
(effect of preparation procedures on the activity of supported  
palladium/lanthanum methanol decomposition catalysts)  
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

L32 ANSWER 14 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 2000:665590 HCAPLUS Full-text  
DOCUMENT NUMBER: 133:225182  
TITLE: Manufacture of nitrous oxide by catalytic  
heterogeneous reduction of nitric oxide  
INVENTOR(S): Guddat, Tobias; Reitzmann, Andreas; Gerhard, Emil  
PATENT ASSIGNEE(S): Phenolchemie G.m.b.H. und Co. K.-G., Germany  
SOURCE: Eur. Pat. Appl., 11 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.   | KIND | DATE     | APPLICATION NO.  | DATE     |
|--|------|----------|------------------|----------|
| EP 1036761   | A1   | 20000920 | EP 2000-104238   | 20000301 |
| <--  |      |          |                  |          |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,<br>PT, IE, SI, LT, LV, FI, RO |      |          |                  |          |
| DE 10009639  | A1   | 20000921 | DE 2000-10009639 | 20000301 |
| <--  |      |          |                  |          |
| JP 2000281321  | A    | 20001010 | JP 2000-68558    | 20000313 |
| <--  |      |          |                  |          |

|                        |   |          |                  |            |
|------------------------|---|----------|------------------|------------|
| CN 1267633             | A | 20000927 | CN 2000-104166   | 20000315   |
|                        |   |          | <--              |            |
| BG 104249              | A | 20010928 | BG 2000-104249   | 20000316   |
|                        |   |          | <--              |            |
| BR 2000001334          | A | 20030415 | BR 2000-1334     | 20000316   |
|                        |   |          | <--              |            |
| PRIORITY APPLN. INFO.: |   |          | DE 1999-19911566 | A 19990316 |
|                        |   |          | <--              |            |

ED Entered STN: 22 Sep 2000

AB Nitrous oxide (N2O) is manufactured by catalytic heterogeneous reduction of nitric oxide (NO) at >40° and 1-20 bars absolute in the presence of a reducing agent (selected from H2, CO, or synthesis gas) in which the NO-containing gases are dried prior to reduction. The exact temperature of reduction is dependent on which of the above reducing agents are used. Suitable catalysts include Pd/Al2O3, Pt/Al2O3, Rh/Al2O3, Ru/Al2O3, La-Fe zeolite, and Cr(III)/SiO2, preferably 1-5 weight% Rh/Al2O3, 1-5 weight% CrO/SiO2, 1-5 weight% Pt/Al2O3, and 1-5 weight% Pd/Al2O3. The NO is derived by Ostwald oxidation of NH3. The process is especially useful for reducing the content of NO in N2O or for manufacture of N2O for use in the hydroxylation of benzene to phenol.

IT 7440-05-3, Palladium, uses  
(alumina-supported, catalyst; manufacture of nitrous  
oxide by catalytic heterogeneous reduction of nitric oxide)

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

Pd

IT 7439-91-0, Lanthanum, uses  
(zeolite-supported, catalyst; manufacture of nitrous  
oxide by catalytic heterogeneous reduction of nitric oxide)

RN 7439-91-0 HCAPLUS

CN Lanthanum (CA INDEX NAME)

La

IC ICM C01B021-22  
ICS C07C037-60

CC 49-8 (Industrial Inorganic Chemicals)

ST nitric oxide redn nitrous oxide; benzene hydroxylation nitrous oxide  
phenol; platinum redn catalyst nitrous oxide manuf; palladium  
redn catalyst nitrous oxide manuf; chromium redn catalyst nitrous  
oxide manuf

IT Zeolites (synthetic), uses  
(catalysts, containing lanthanum and iron; manufacture of nitrous  
oxide by catalytic heterogeneous reduction of nitric oxide)

IT 7440-05-3, Palladium, uses 7440-06-4, Platinum,  
uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses  
(alumina-supported, catalyst; manufacture of nitrous  
oxide by catalytic heterogeneous reduction of nitric oxide)

IT 7440-47-3, Chromium, uses  
(silica-supported, catalyst; manufacture of nitrous

oxide by catalytic heterogeneous reduction of nitric oxide)  
 IT 7439-89-6, Iron, uses 7439-91-6, Lanthanum, uses  
 (zeolite-supported, catalyst; manufacture of nitrous  
 oxide by catalytic heterogeneous reduction of nitric oxide)  
 REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
 RE FORMAT

L32 ANSWER 15 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1999:384105 HCAPLUS Full-text  
 DOCUMENT NUMBER: 131:18791  
 TITLE: Hydrogenation process and heterogeneous catalysts  
 for the preparation of mixtures of optionally  
 substituted cyclohexylamines and  
 dicyclohexylamines from the corresponding anilines  
 Darsow, Gerhard; Langer, Reinhard  
 INVENTOR(S):  
 PATENT ASSIGNEE(S): Bayer A.-G., Germany  
 SOURCE: Ger. Offen., 8 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO.  | DATE       |
|------------------------|------|----------|--|------------|
| DE 19754571            | A1   | 19990610 | DE 1997-19754571   | 19971209   |
|                        |      |          | <--  |            |
| WO 9929654             | A1   | 19990617 | WO 1998-EP7629   | 19981126   |
|                        |      |          | <--  |            |
| W:                     |      |          | AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM |            |
| RW:                    |      |          | GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG   |            |
| AU 9919645             | A    | 19990628 | AU 1999-19645  | 19981126   |
|                        |      |          | <--  |            |
| EP 1037870             | A1   | 20000927 | EP 1998-964445   | 19981126   |
|                        |      |          | <--  |            |
| R:                     |      |          | BE, CH, DE, ES, FR, GB, IT, LI, NL, PT   |            |
| JP 2001525387          | T    | 20011211 | JP 2000-524251   | 19981126   |
|                        |      |          | <--  |            |
| US 6335470             | B1   | 20020101 | US 2000-555755   | 20000602   |
|                        |      |          | <--  |            |
| PRIORITY APPLN. INFO.: |      |          | DE 1997-19754571   | A 19971209 |
|                        |      |          | <--  |            |
|                        |      |          | WO 1998-EP7629   | W 19981126 |
|                        |      |          | <--  |            |

OTHER SOURCE(S): CASREACT 131:18791; MARPAT 131:18791  
 ED Entered STN: 22 Jun 1999  
 AB Mixts. of optionally substituted cyclohexylamines and dicyclohexylamines (e.g., cyclohexylamine and dicyclohexylamine) are prepared in high yield and selectivity by the hydrogenation of the correspondingly substituted anilines R1(R2)C6H3NH2 (R1, R2 = H, C1-4 alkyl, C1-4 alkoxy) (e.g., aniline) at 100-350°/10-400 bar in the presence of a heterogeneous catalyst containing, as the active components, 0.05-10% Ru and Pd in a Ru-Pd molar ratio of 1:30 to 30:1,

resp., on a support (e.g., alumina) which is free of halogen and sulfur compds.

IT 7439-91-0, Lanthanum, uses 7440-05-3,  
 Palladium, uses  
 (hydrogenation process and heterogeneous catalysts for the preparation  
 of mixts. of optionally substituted cyclohexylamines and  
 dicyclohexylamines from the corresponding anilines)

RN 7439-91-0 HCAPLUS

CN Lanthanum (CA INDEX NAME)

La

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

Pd

IC ICM C07C211-35

ICS C07C211-36; C07C209-72; C07C217-52; C07C213-08

CC 24-5 (Alicyclic Compounds)

Section cross-reference(s): 45, 48, 67

ST cyclohexylamine prepn aniline hydrogenation; dicyclohexylamine prepn  
 aniline hydrogenation; palladium ruthenium hydrogenation  
 catalyst aniline conversion cyclohexylamine dicyclohexylamine

IT Hydrogenation catalysts  
 (Ru and Pd on a support free of halogen and  
 sulfur compds. for the conversion of optionally substituted  
 anilines into the correspondingly substituted cyclohexylamines and  
 dicyclohexylamines)

IT Rare earth metals, uses  
 (supported catalysts with Pd and Ru  
 for the hydrogenation of optionally substituted anilines into  
 mixts. of optionally substituted cyclohexylamines and  
 dicyclohexylamines)

IT 7429-91-6, Dysprosium, uses 7439-91-0, Lanthanum,  
 uses 7439-96-5, Manganese, uses 7440-00-8, Neodymium, uses  
 7440-05-3, Palladium, uses 7440-10-0,  
 Praseodymium, uses 7440-18-8, Ruthenium, uses 7440-45-1, Cerium,  
 uses 7440-65-5, Yttrium, uses  
 (hydrogenation process and heterogeneous catalysts for the preparation  
 of mixts. of optionally substituted cyclohexylamines and  
 dicyclohexylamines from the corresponding anilines)

L32 ANSWER 16 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:140142 HCAPLUS Full-text

DOCUMENT NUMBER: 130:154066

TITLE: Catalyst for preparing ethylene by oxidation and  
 dehydrogenation of ethane and process thereof

INVENTOR(S): Ji, Lang; Liu, Junsheng; Liu, Chongya; Zhang,  
 Mingqian; Chen, Xiancheng

PATENT ASSIGNEE(S): Lanzhou Institute of Chemical Physics, Chinese  
 Academy of Sciences, Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 10  
pp.  
CODEN: CNXXEV  
DOCUMENT TYPE: Patent  
LANGUAGE: Chinese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE     |
|------------|------|----------|-----------------|----------|
| CN 1121844 | A    | 19960508 | CN 1994-116060  | 19940912 |
|            |      |          | <--             |          |
| CN 1052431 | B    | 20000517 |                 |          |
|            |      |          | CN 1994-116060  | 19940912 |
|            |      |          | <--             |          |

PRIORITY APPLN. INFO.:

ED Entered STN: 05 Mar 1999

AB Title catalyst for oxidation and dehydrogenation of ethane to ethylene at 300°-650° is a complex oxide with general formula of  $\text{XaYbZcOd}$  or  $\text{XaYbZcOd/support}$ , where X = Li, Na, K, Rb, Cs; Y = La, Zr, Cr, Mo, W, Mn, Fe, Co, Ni, Pt, Pd, Cu, Zn, Cd, Pb, Sn; Z = Be, Mg, Ca; a:b = 0.1- 3.0, and a:c = 0.1-0.3; the catalyst support is  $\text{SiO}_2$ ,  $\gamma$ - or  $\eta$ - $\text{Al}_2\text{O}_3$ ,  $\text{TiO}_2$  or  $\text{ZrO}_2$ , and the active component amount in the supported catalyst is 2-50%. Thus, ethane was oxidized and dehydrogenated with the catalyst, which was prepared by reaction of  $\text{La}(\text{NO}_3)_3$  with  $\text{Ca}(\text{NO}_3)_2$  and  $\text{LiNO}_3$ , then dried at 120° for 24 h, baked at 650° for 10 h, and pulverized to 20-60 mesh, at reaction temperature 620° to give ethylene with yield 39.4%, and ethylene selectivity 93.8%.

IT 7440-05-3, Palladium, uses  
(catalyst component; preparation of metal oxide catalyst for preparing ethylene by oxidation and dehydrogenation of ethane)

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

Pd

IC ICM B01J023-16

ICS B01J023-70; B01J023-76; C07C005-48; C07C011-04

CC 35-2 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 67

IT 534-17-8, Cesium carbonate 1304-56-9, Beryllium oxide, uses  
1305-62-0, Calcium hydroxide, uses 1309-48-4, Magnesium oxide, uses  
1310-65-2, Lithium hydroxide 3251-23-8 7439-92-1, Lead, uses  
7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses  
7440-05-3, Palladium, uses 7440-06-4, Platinum,  
uses 7440-17-7, Rubidium, uses 7440-31-5, Tin, uses 7440-33-7,  
Tungsten, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses  
7631-99-4, Sodium nitrate, uses 7757-79-1, Potassium  
nitrate, uses 7779-88-6, Zinc nitrate 7790-69-4 10043-52-4,  
Calcium chloride, uses 10099-59-9, Lanthanum nitrate ( $\text{La}(\text{NO}_3)_3$ )  
10124-37-5, Calcium nitrate ( $\text{Ca}(\text{NO}_3)_2$ )  
10361-44-1, Bismuth nitrate 10377-60-3, Magnesium nitrate  
10421-48-4 13138-45-9, Nickel nitrate  
(catalyst component; preparation of metal oxide catalyst for preparing ethylene by oxidation and dehydrogenation of ethane)

IT 1314-23-4, Zirconium oxide, uses 1344-28-1, Aluminum oxide ( $\text{Al}_2\text{O}_3$ ),  
uses 7631-86-9, Silica, uses 13463-67-7, Titanium oxide  
( $\text{TiO}_2$ ), uses

(support; preparation of metal oxide catalyst for preparing ethylene by oxidation and dehydrogenation of ethane)

L32 ANSWER 17 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1999:113592 HCAPLUS Full-text  
 DOCUMENT NUMBER: 130:169810  
 TITLE: Catalyst and process for the preparation of aromatic carbonates  
 INVENTOR(S): Yoshisato, Eishin  
 PATENT ASSIGNEE(S): Teijin Limited, Japan  
 SOURCE: PCT Int. Appl., 43 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE        |
|---|------|----------|-----------------|-------------|
| WO 9906142  | A1   | 19990211 | WO 1998-JP3473  | 19980804    |
| <--   |      |          |                 |             |
| W: AU, CA, CN, ID, JP, KR, SG, US   |      |          |                 |             |
| RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE  |      |          |                 |             |
| CA 2298654  | A1   | 19990211 | CA 1998-2298654 | 19980804    |
| <--   |      |          |                 |             |
| AU 9884636  | A    | 19990222 | AU 1998-84636   | 19980804    |
| <--   |      |          |                 |             |
| AU 744246   | B2   | 20020221 |                 |             |
| EP 1027926  | A1   | 20000816 | EP 1998-935356  | 19980804    |
| <--   |      |          |                 |             |
| EP 1027926  | B1   | 20040317 |                 |             |
| R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE   |      |          |                 |             |
| CN 1116930  | B    | 20030806 | CN 1998-807920  | 19980804    |
| <--   |      |          |                 |             |
| AT 261772   | T    | 20040415 | AT 1998-935356  | 19980804    |
| <--   |      |          |                 |             |
| ES 2216298  | T3   | 20041016 | ES 1998-935356  | 19980804    |
| <--   |      |          |                 |             |
| US 2002198397   | A1   | 20021226 | US 2000-485093  | 20000204    |
| <--   |      |          |                 |             |
| US 6534670  | B2   | 20030318 |                 |             |
| US 2003105346   | A1   | 20030605 | US 2002-315000  | 20021210    |
| <--   |      |          |                 |             |
| US 6720443  | B2   | 20040413 |                 |             |
| PRIORITY APPLN. INFO.:  |      |          |                 |             |
|   |      |          | JP 1997-209059  | A 19970804  |
| <--   |      |          |                 |             |
|   |      |          | JP 1998-25700   | A 19980206  |
| <--   |      |          |                 |             |
|   |      |          | JP 1998-127497  | A 19980511  |
| <--   |      |          |                 |             |
|   |      |          | WO 1998-JP3473  | W 19980804  |
| <--   |      |          |                 |             |
|   |      |          | US 2000-485093  | A3 20000204 |
| <--   |      |          |                 |             |
| ED Entered STN: 19 Feb 1999   |      |          |                 |             |
| AB Aromatic carbonates are prepared economically and efficiently by reacting an aromatic hydroxyl compound with carbon monoxide and oxygen in the presence of a catalyst which comprises M(1-x)M' <sub>x</sub> M'' <sub>Oy</sub> (wherein M is a group IIIB metal; x is a number of 0 to 1; M' is a metal having an ionic radius of 0.90 Å or |      |          |                 |             |

above; M'' is Mn, Cr, Co, Fe, Ni or Cu; and y is a number of 2.5 to 3.5) or L(1-x)L'xL''Oy (wherein L is a group IIA or IVA metal taking a divalent state in the form of an oxide; x is a number of 0 to 1; L' is a metal having an ionic radius of 0.90 Å or above; L'' is a group IVA, IVB or IIIB metal taking a tetravalent state in the form of an oxide; and y is a number of 2.5 to 3.5) and a palladium compound supported on the composite oxide. Thus, Pb(NO<sub>3</sub>)<sub>2</sub> 4.14, La(NO<sub>3</sub>)<sub>3</sub>·6H<sub>2</sub>O 5.41, Mn(NO<sub>3</sub>)<sub>2</sub>·6H<sub>2</sub>O 7.18 and citric acid 10.5 g were reacted to give La<sub>0.5</sub>Pb<sub>0.5</sub>MnO<sub>3</sub>, 5.0 g of which was reacted with Na<sub>2</sub>PdCl<sub>4</sub> to give a supported catalyst with Pd content 1.0%, 2000 mg of which, phenol 50 g, tetrabutylammonium chloride 986 mg, and carbon monoxide were reacted to give di-Ph carbonate 10.18 g.

IT 7440-05-3, Palladium, uses  
(catalyst and process for preparation of aromatic carbonates)  
RN 7440-05-3 HCAPLUS  
CN Palladium (CA INDEX NAME)

Pd

IC ICM B01J023-44  
ICS B01J023-64; B01J023-89; C07C069-96; C07C068-00  
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
Section cross-reference(s): 67  
IT 7440-05-3, Palladium, uses 13820-53-6, Disodium  
palladium tetrachloride  
(catalyst and process for preparation of aromatic carbonates)  
IT 12047-25-5P, Bariumlead oxide (BaPbO<sub>3</sub>) 12060-01-4P, Leadzirconium  
oxide (PbZrO<sub>3</sub>) 64296-90-8P, Lanthanum lead manganese oxide  
(LaPbMnO<sub>6</sub>) 108916-22-9P, Lanthanum manganese strontium  
oxide (La<sub>0.8</sub>MnSr<sub>0.2</sub>O<sub>3</sub>) 120000-51-3P, Lanthanum lead  
manganese oxide (La<sub>0.6</sub>Pb<sub>0.4</sub>MnO<sub>3</sub>) 125862-10-4P, Lead manganese  
neodymium oxide (Pb<sub>0.4</sub>MnNd<sub>0.6</sub>O<sub>3</sub>) 125862-11-5P, Lead manganese  
praseodymium oxide (Pb<sub>0.4</sub>MnPr<sub>0.6</sub>O<sub>3</sub>) 137751-82-7P, Lead strontium  
zirconium oxide (Pb<sub>0.4</sub>Sr<sub>0.6</sub>ZrO<sub>3</sub>) 220345-57-3P, Cerium lead manganese  
oxide (Ce<sub>0.5</sub>Pb<sub>0.5</sub>MnO<sub>3</sub>) 220345-59-5P, Cerium lead manganese oxide  
(Ce<sub>0.6</sub>Pb<sub>0.4</sub>MnO<sub>3</sub>) 220345-60-8P, Barium lead zirconium oxide  
(Ba<sub>0.6</sub>Pb<sub>0.4</sub>ZrO<sub>3</sub>)  
(catalyst and process for preparation of aromatic carbonates)  
IT 1071-76-7, Zirconium tetrabutoxide 6080-56-4 10042-76-9, Strontium  
nitrate 10099-74-8, Lead nitrate 10277-43-7, Lanthanum  
nitrate hexahydrate 17141-63-8, Manganous nitrate hexahydrate  
74418-77-2  
(starting material for catalyst; catalyst and process for preparation of  
aromatic carbonates)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

L32 ANSWER 18 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER:

1999:64727 HCAPLUS [Full-Text](#)

DOCUMENT NUMBER:

130:112338

TITLE:

Membrane and method for synthesis of hydrogen  
peroxide

INVENTOR(S):

McIntyre, James A.; Sanders, Edgar S., Jr.;  
Mahoney, Robert D.; Webb, Steven P.; Murchison,  
Craig B.; Hayes, David A.

PATENT ASSIGNEE(S):

The Dow Chemical Company, USA

SOURCE: PCT Int. Appl., 37 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE     |
|------------|------|----------|-----------------|----------|
| WO 9902264 | A1   | 19990121 | WO 1998-US12156 | 19980610 |

&lt;--

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ,  
 DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP,  
 KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN,  
 MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,  
 TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ,  
 MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK,  
 ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,  
 CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG

|            |   |          |               |          |
|------------|---|----------|---------------|----------|
| AU 9880675 | A | 19990208 | AU 1998-80675 | 19980610 |
|------------|---|----------|---------------|----------|

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|                        |                |   |          |
|------------------------|----------------|---|----------|
| PRIORITY APPLN. INFO.: | US 1997-52299P | P | 19970711 |
|------------------------|----------------|---|----------|

&lt;--

|                 |   |          |
|-----------------|---|----------|
| WO 1998-US12156 | W | 19980610 |
|-----------------|---|----------|

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ED Entered STN: 01 Feb 1999

AB A membrane useful for the manufacture of hydrogen peroxide from hydrogen and oxygen has a hydrogen contact side and an oxygen contact side and comprises a porous hydrophobic catalyst layer facing the oxygen contact side and a gas flux control layer facing the hydrogen contact side. A gas flux control layer is positioned between the hydrogen contact side and the porous hydrophobic catalyst layer such that the flux of hydrogen may be controllably delivered to the porous hydrophobic catalyst layer. The gas flux control layer is typically a macroporous hydrophobic organic polymeric material selected from polycarbonates, polyesters, polyester carbonates, polysulfones, polyolefins, polyphenylene oxides, polyethers, polyimides, polystyrene, polyether imides, polyamide imides, or polyether sulfones. In addition, a catalyst erosion control layer is positioned on the surface of the porous hydrophobic catalyst layer. The catalyst is an oxygen-reducing catalyst selected from Pt, Pd, Rh, Re, Ir, Au, Ag, Cu, Co, Fe, Ni, Pb, Zn, Ga, Sn, and Bi, on a carrier. The membrane and method may be used to synthesize hydrogen peroxide directly from hydrogen and oxygen without the use of organic solvents or complex equipment for ionic and elec. transport.

IT 7440-05-3, Palladium, uses  
 (catalysts; polymeric membrane with impregnated catalyst for manufacture of hydrogen peroxide from hydrogen and oxygen)

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

Pd

IC ICM B01J035-06

ICS B01J031-06; C01B015-029

CC 49-8 (Industrial Inorganic Chemicals)

Section cross-reference(s): 38

IT Heteropoly acids  
Zeolites (synthetic), uses  
(catalyst support; polymeric membrane with impregnated  
catalyst for manufacture of hydrogen peroxide from hydrogen and oxygen)

IT 1306-38-3, Cerium oxide, uses 1312-81-8, Lanthanum oxide  
1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7440-44-0,  
Carbon, uses 7631-86-9, Silica, uses 7664-38-2D, Phosphoric acid,  
alkaline earth salts, uses 7664-93-9D, Sulfuric acid, alkaline earth salts,  
uses 11129-18-3, Cerium oxide 12653-89-3, Vanadium silicate  
13463-67-7, Titania, uses 42613-21-8, Titanium silicate  
(catalyst support; polymeric membrane with impregnated  
catalyst for manufacture of hydrogen peroxide from hydrogen and oxygen)

IT 7439-89-6, Iron, uses 7439-92-1, Lead, uses 7440-02-0, Nickel,  
uses 7440-05-3, Palladium, uses 7440-06-4,  
Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses  
7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-48-4, Cobalt,  
uses 7440-50-8, Copper, uses 7440-55-3, Gallium, uses 7440-57-5,  
Gold, uses 7440-66-6, Zinc, uses 7440-69-9, Bismuth, uses  
7440-74-6, Indium, uses  
(catalysts; polymeric membrane with impregnated catalyst for manufacture  
of hydrogen peroxide from hydrogen and oxygen)

IT 1429-50-1, Ethylenediamine tetra(methylenephosphonic acid)  
2466-09-3, Pyrophosphoric acid 2809-21-4, 1-Hydroxyethylidene-  
1,1-diphosphonic acid 6419-19-8,  
Aminotri(methylenephosphonic acid)  
(hydrogen peroxide stabilizers; polymeric membrane with impregnated  
catalyst for manufacture of hydrogen peroxide from hydrogen and oxygen)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE  
RE FORMAT

L32 ANSWER 19 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1998:771315 HCAPLUS Full-text

DOCUMENT NUMBER: 130:38779

TITLE: Preparation of vinyl acetate using  
supported catalysts

INVENTOR(S): Hagemeyer, Alfred; Werner, Harald; Dingerdissen,  
Uwe

PATENT ASSIGNEE(S): Hoechst A.-G., Germany

SOURCE: Ger. Offen., 4 pp.  
CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO.  | DATE     |
|---|------|----------|------------------|----------|
| -----   | ---  | -----    | -----            | -----    |
| DE 19721368   | A1   | 19981126 | DE 1997-19721368 | 19970522 |
|   |      |          | <--              |          |
| WO 9852688  | A1   | 19981126 | WO 1998-EP2916   | 19980518 |
|   |      |          | <--              |          |
| W: AU, BR, CA, CN, CZ, HU, ID, JP, KR, MX, NO, NZ, PL, RU, SG,<br>TR, US, YU  |      |          |                  |          |
| RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC,<br>NL, PT, SE |      |          |                  |          |
| AU 9879133  | A    | 19981211 | AU 1998-79133    | 19980518 |
|   |      |          | <--              |          |

PRIORITY APPLN. INFO.: DE 1997-19721368 A 19970522  
<--

ED Entered STN: 09 Dec 1998  
 AB Vinyl acetate is prepared from ethylene and acetic acid in the gas phase in the presence of O over a based on Pd, K, and either Cd, Ba, or Au supported on HiFlow carriers of surface area 10-250 m<sup>2</sup>/g, pore volume 0.2-1.2 mL/g, and average pore size 10-500 nm. The asym. ring-shaped supports, based on SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, ZrO<sub>2</sub>, TiO<sub>2</sub>, SiC, Si<sub>3</sub>N<sub>4</sub>, B<sub>4</sub>C<sub>3</sub>, C, AlN, or their mixts., promote high selectivity and conversion.  
 IT 7440-32-6, Titanium, uses  
     (HiFlow-supported catalyst containing  
     palladium and potassium and; in production of vinyl  
     acetate from ethylene and acetic acid)  
 RN 7440-32-6 HCAPLUS  
 CN Titanium (CA INDEX NAME)

Ti

IT 7440-05-3, Palladium, uses 7440-09-7,  
 Potassium, uses  
     (HiFlow-supported catalyst; in production of vinyl  
     acetate from ethylene and acetic acid)  
 RN 7440-05-3 HCAPLUS  
 CN Palladium (CA INDEX NAME)

Pd

RN 7440-09-7 HCAPLUS  
 CN Potassium (CA INDEX NAME)

K

IC ICM C07C069-15  
 ICS C07C067-055  
 ICA B01J023-60; B01J023-58; B01J027-224; B01J027-24; B01J027-22  
 ICI B01J023-66, B01J103-68  
 CC 35-2 (Chemistry of Synthetic High Polymers)  
 ST catalyst support prodn vinyl acetate; acetoxylation catalyst  
 support; HiFlow catalyst support prodn vinyl  
 acetate; vinylation oxidative catalyst support  
 IT Catalyst supports  
     (HiFlow; in production of vinyl acetate from ethylene and acetic acid)  
 IT Vinylation catalysts  
     (oxidative, supported; in production of vinyl acetate from  
     ethylene and acetic acid)  
 IT Catalyst supports  
 Catalyst supports  
 Oxidation catalysts

- Oxidation catalysts  
(oxidation catalyst supports, HiFlow; in production of vinyl acetate from ethylene and acetic acid)
- IT Acetoxylation catalysts  
(supported; in production of vinyl acetate from ethylene and acetic acid)
- IT Oxidation catalysts  
(vinylation, supported; in production of vinyl acetate from ethylene and acetic acid)
- IT 7440-32-6, Titanium, uses 7440-39-3, Barium, uses 7440-43-9, Cadmium, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-67-7, Zirconium, uses  
(HiFlow-supported catalyst containing palladium and potassium and; in production of vinyl acetate from ethylene and acetic acid)
- IT 7440-05-3, Palladium, uses 7440-09-7, Potassium, uses  
(HiFlow-supported catalyst; in production of vinyl acetate from ethylene and acetic acid)
- IT 409-21-2, Silicon carbide, uses 1314-23-4, Zirconium dioxide, uses 1344-28-1, Aluminum oxide, uses 7440-44-0, Carbon, uses 7631-86-9, Silicon dioxide, uses 10043-11-5, Boron nitride (BN), uses 12033-89-5, Silicon nitride (Si<sub>3</sub>N<sub>4</sub>), uses 12115-61-6, Boron carbide (B<sub>4</sub>C<sub>3</sub>) 13463-67-7, Titanium dioxide, uses 24304-00-5, Aluminum nitride (AlN) 119791-84-3, HiFlow  
(catalyst support in production of vinyl acetate from ethylene and acetic acid)
- IT 7782-44-7, Oxygen, reactions  
(in production of vinyl acetate from ethylene and acetic acid using HiFlow-supported catalysts)
- IT 108-05-4P, Vinyl acetate, preparation  
(production from ethylene and acetic acid using HiFlow-supported oxidative catalysts)
- IT 64-19-7, Acetic acid, reactions 74-85-1, Ethylene, reactions  
(production of vinyl acetate from ethylene and acetic acid using HiFlow-supported oxidative catalysts)

L32 ANSWER 20 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1998:668108 HCAPLUS Full-text

DOCUMENT NUMBER: 129:246872

TITLE: Process and catalysts for the preparation of tertiary amines from nitriles and secondary amines  
Fuchs, Eberhard; Breitscheidel, Boris; Becker, Rainer; Neuhauser, Horst

INVENTOR(S): BASF A.-G., Germany

PATENT ASSIGNEE(S): Eur. Pat. Appl., 7 pp.

CODEN: EPXXDW

SOURCE: Patent

DOCUMENT TYPE: German

LANGUAGE:

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|--|------|----------|-----------------|----------|
| -----  | ---  | -----    | -----           | -----    |
| EP 869113  | A2   | 19981007 | EP 1998-105636  | 19980327 |
|  |      |          | <--             |          |
| EP 869113  | A3   | 19990210 |                 |          |
| EP 869113  | B1   | 20030604 |                 |          |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, |      |          |                 |          |
| PT, IE, SI, LT, LV, FI, RO                                     |      |          |                 |          |

|                        |    |          |                  |            |
|------------------------|----|----------|------------------|------------|
| DE 19713383            | A1 | 19981008 | DE 1997-19713383 | 19970401   |
|                        |    |          | <--              |            |
| TW 408096              | B  | 20001011 | TW 1998-87104568 | 19980326   |
|                        |    |          | <--              |            |
| US 5894074             | A  | 19990413 | US 1998-50918    | 19980331   |
|                        |    |          | <--              |            |
| JP 10338664            | A  | 19981222 | JP 1998-88668    | 19980401   |
|                        |    |          | <--              |            |
| PRIORITY APPLN. INFO.: |    |          | DE 1997-19713383 | A 19970401 |
|                        |    |          | <--              |            |

OTHER SOURCE(S): MARPAT 129:246872

ED Entered STN: 22 Oct 1998

AB Tertiary amines X(CH<sub>2</sub>NR<sub>1</sub>R<sub>2</sub>)<sub>n</sub> [R<sub>1</sub>, R<sub>2</sub> = (un)substituted alkyl, cycloalkyl, alkylcycloalkyl, (un)substituted aryl, etc.; X = (un)substituted alkyl, cycloalkyl, (un)substituted aryl, HO, hydroxyalkyl, (un)substituted NH<sub>2</sub>, etc.] are prepared in high yield and selectivity and with increased catalyst lifetime by the reaction of nitriles (R<sub>1</sub>R<sub>2</sub>NCH<sub>2</sub>)<sub>n</sub>-mX(CN)<sub>m</sub> (m = 1 to n) with secondary amines HNRR<sub>2</sub> in the presence of hydrogen at 50-250°/5-350 bar using a supported catalyst containing 0.1-10% Pd and 0.01-10% of Group IB and/or VIII metals and/or Ce and/or La. Thus, adiponitrile, dimethylamine, and a catalyst containing 0.9% Pd and 0.1% Pt on ZrO<sub>2</sub> were reacted with hydrogen at 120°/200 bar, producing tetramethyhexamethylenediamine in 90% yield.

IT 7440-05-3, Palladium, uses  
(process and catalysts for the preparation of tertiary amines from nitriles and secondary amines)

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

Pd

IC ICM C07C209-48

ICS C07C211-12; C07C213-02; C07C215-08

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 23, 48, 67

ST tetramethyhexamethylenediamine manuf; tertiary amine manuf;  
adiponitrile dimethylamine reaction manuf  
tetramethyhexamethylenediamine; nitrile reaction tertiary amine manuf;  
catalyst palladium platinum manuf  
tetramethyhexamethylenediamine

IT Catalysts

(Pd and Pt and/or Group VIII metals and/or Group IB  
metals and/or La and/or Ce for the preparation of tertiary  
amines from nitriles and secondary amines)

IT 409-21-2, Silicon carbide, uses 1314-23-4, Zirconia, uses

1344-28-1, Alumina, uses 7440-05-3, Palladium,

uses 7440-06-4, Platinum, uses 7631-86-9, Silica, uses

13463-67-7, Titania, uses

(process and catalysts for the preparation of tertiary amines from  
nitriles and secondary amines)

IT 111-18-2P, 1,6-Bis(Dimethylamino)hexane

3179-63-3P, 3-(Dimethylamino)propanol

(process and catalysts for the preparation of tertiary amines from  
nitriles and secondary amines)

L32 ANSWER 21 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1998:300823 HCAPLUS Full-text

DOCUMENT NUMBER: 128:323138  
 TITLE: Catalysts for amination of alkylene oxides, alcohols, aldehydes and ketones  
 INVENTOR(S): Wulff-Doring, Joachim; Melder, Johann-Peter; Schulz, Gerhard; Voit, Guido; Gutschoven, Frank; Harder, Wolfgang  
 PATENT ASSIGNEE(S): Basf A.-G., Germany  
 SOURCE: Eur. Pat. Appl., 9 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND  | DATE     | APPLICATION NO.   | DATE        |
|------------------------|---|----------|---|-------------|
| EP 839574              | A2  | 19980506 | EP 1997-118631  | 19971027    |
|                        |   |          | <--   |             |
| EP 839574              | A3  | 19980812 |   |             |
| EP 839574              | B1  | 20010530 |   |             |
|                        |   |          | GB, GR, IT, LI, LU, NL, SE, MC,<br>PT, IE, SI, LT, LV, FI, RO |             |
| DE 19644107            | A1  | 19980507 | DE 1996-19644107  | 19961031    |
|                        |   |          | <--   |             |
| US 5916838             | A   | 19990629 | US 1997-955264  | 19971021    |
|                        |   |          | <--   |             |
| ES 2158423             | T3  | 20010901 | ES 1997-118631  | 19971027    |
|                        |   |          | <--   |             |
| JP 10174874            | A   | 19980630 | JP 1997-296775  | 19971029    |
|                        |   |          | <--   |             |
| CN 1181284             | A   | 19980513 | CN 1997-121251  | 19971030    |
|                        |   |          | <--   |             |
| CN 1124179             | B   | 20031015 |   |             |
| US 6046359             | A   | 20000404 | US 1999-262262  | 19990304    |
|                        |   |          | <--   |             |
| PRIORITY APPLN. INFO.: |   |          | DE 1996-19644107  | A 19961031  |
|                        |   |          | <--   |             |
|                        |   |          | US 1997-955264  | A3 19971021 |
|                        |   |          | <--   |             |
| OTHER SOURCE(S):       | MARPAT 128:323138   |          |   |             |
| ED                     | Entered STN: 22 May 1998  |          |   |             |
| AB                     | Ru-, Ni- and/or Co-containing catalysts are used for the title purpose, especially for amination of H <sub>2</sub> NCH <sub>2</sub> CH <sub>2</sub> OH with NH <sub>3</sub> to manufacture H <sub>2</sub> NCH <sub>2</sub> CH <sub>2</sub> NH <sub>2</sub> with improved selectivity. The catalysts contain decreased amts. of Ni or Co and have improved stability in continuous operation. A typical catalyst (preparation given) contained Ru 1, Ni 0.79, Co 0.79 and Cu 1.6% on Al <sub>2</sub> O <sub>3</sub> support. |          |   |             |
| IT                     | 7440-05-3, Palladium, uses 7440-09-7, Potassium, uses (promoter; catalysts for amination of alkylene oxides, alcs., aldehydes and ketones)  |          |   |             |
| RN                     | 7440-05-3 HCAPLUS   |          |   |             |
| CN                     | Palladium (CA INDEX NAME)   |          |   |             |

RN 7440-09-7 HCAPLUS  
 CN Potassium (CA INDEX NAME)

K

IC ICM B01J023-89  
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
 Section cross-reference(s): 67  
 IT Aluminosilicates, uses  
 (supports; catalysts for amination of alkylene  
 oxides, alcs., aldehydes and ketones)  
 IT 7439-88-5, Iridium, uses 7439-92-1, Lead, uses 7439-93-2, Lithium,  
 uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses  
 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses  
 7440-06-4, Platinum, uses 7440-09-7, Potassium,  
 uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses  
 7440-17-7, Rubidium, uses 7440-22-4, Silver, uses 7440-23-5,  
 Sodium, uses 7440-28-0, Thallium, uses 7440-31-5, Tin, uses  
 7440-33-7, Tungsten, uses 7440-36-0, Antimony, uses 7440-38-2,  
 Arsenic, uses 7440-43-9, Cadmium, uses 7440-46-2, Cesium, uses  
 7440-47-3, Chromium, uses 7440-57-5, Gold, uses 7440-66-6, Zinc,  
 uses 7440-69-9, Bismuth, uses 7723-14-0, Phosphorus, uses  
 13494-80-9, Tellurium, uses  
 (promoter; catalysts for amination of alkylene oxides, alcs.,  
 aldehydes and ketones)  
 IT 1309-48-4, Magnesium oxide, uses 1314-23-4, Zirconium dioxide, uses  
 1344-28-1, Aluminum oxide, uses 7631-86-9, Silica, uses  
 13463-67-7, Titanium dioxide, uses  
 (support; catalysts for amination of alkylene  
 oxides, alcs., aldehydes and ketones)

L32 ANSWER 22 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1997:289851 HCAPLUS Full-text  
 DOCUMENT NUMBER: 126:266226  
 TITLE: Catalyst powder, combustion catalyst and combustor  
 INVENTOR(S): Ohashi, Toshuki; Furuya, Tomiaki; Sasaki,  
 Kunihiro; Hanakada, Yoshio  
 PATENT ASSIGNEE(S): Tokyo Shibaura Electric Co, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| -----                  | ---- | -----    | -----           | -----    |
| JP 09052045            | A    | 19970225 | JP 1995-208124  | 19950815 |
|                        |      |          | <--             |          |
| PRIORITY APPLN. INFO.: |      |          | JP 1995-208124  | 19950815 |
|                        |      |          | <--             |          |

ED Entered STN: 07 May 1997

AB Catalyst powder, especially for gas turbine combustor, comprises an oxide support having  $>2.0 \times 10^{-2} \Omega \text{cm}$  O ion conductivity at  $>800^\circ$  and at least a part of the support surface coated with an elec. conductive material, which the support is loaded with catalytically active components containing PdO.

IT 7440-05-3, Palladium, uses  
 (catalyst powder and combustion catalyst for gas turbine combustor)  
 RN 7440-05-3 HCAPLUS  
 CN Palladium (CA INDEX NAME)

Pd

IC ICM B01J023-44  
 ICS B01J023-10; B01J023-63; B01J023-58; F23R003-40  
 CC 51-12 (Fossil Fuels, Derivatives, and Related Products)  
 Section cross-reference(s): 67  
 IT 1314-08-5, Palladium oxide 7439-95-4, Magnesium, uses  
 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses  
 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 12510-42-8,  
 Erionite  
 (catalyst powder and combustion catalyst for gas turbine combustor)  
 IT 1306-38-3, Ceria, uses 1309-48-4, Magnesia, uses 1312-81-8,  
 Lanthanum oxide 1313-99-1, Nickel oxide, uses 1314-61-0,  
 Tantalum oxide 1344-28-1, Alumina, uses 7631-86-9, Silica, uses  
 13463-67-7, Titania, uses 114168-16-0, Yttrium zirconium oxide  
 (Y0.16Zr0.92O2.08)  
 (support containing; catalyst powder and combustion catalyst  
 for gas turbine combustor)  
 IT 64417-98-7, Yttrium zirconium oxide  
 (support; catalyst powder and combustion  
 catalyst for gas turbine combustor)  
 IT 122219-12-9P, Scandium yttrium zirconium oxide  
 (Sc0.02Y0.14Zr0.92O2.08) 122219-13-0P, Scandium yttrium zirconium  
 oxide (Sc0.08Y0.08Zr0.92O2.08) 144495-46-5P, Scandium zirconium  
 oxide (Sc0.16Zr0.92O2.08) 150691-97-7P, Scandium yttrium zirconium  
 oxide (Sc0.04Y0.12Zr0.92O2.08)  
 (support; catalyst powder and combustion  
 catalyst for gas turbine combustor)

L32 ANSWER 23 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1997:128203 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 126:211742  
 TITLE: Impact of carbon dioxide on the activity and  
 selectivity of supported  
 palladium catalysts for carbon monoxide  
 hydrogenation  
 AUTHOR(S): Filonenko, G. V.  
 CORPORATE SOURCE: L. V. Pizarzevskii Inst. Phys. Chem., Natl. Acad.  
 Sci. Ukraine, Kiev, Ukraine  
 SOURCE: Adsorption Science & Technology (1996),  
 14(5), 279-285  
 CODEN: ASTEEZ; ISSN: 0263-6174  
 PUBLISHER: Multi-Science Publishing  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

ED Entered STN: 26 Feb 1997

AB The introduction of 1.5 volume% carbon dioxide into the reaction mixture  
 (CO/H<sub>2</sub> = 1:2) is shown to accelerate the rate of formation of methanol and the  
 selectivity towards oxygen-containing products over palladium catalysts  
 supported on oxides of various chemical natures. The maximum degree of impact  
 of CO<sub>2</sub> was observed over palladium supported on magnesia and zirconia.

IT 7440-05-3, Palladium, uses  
 (supported; impact of carbon dioxide on the activity and  
 selectivity of supported palladium catalysts  
 for carbon monoxide hydrogenation)

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

FD

CC 22-7 (Physical Organic Chemistry)

ST hydrogenation carbon monoxide palladium supported  
 catalyst; carbon dioxide impact methanol prep

IT Fischer-Tropsch catalysts  
 (impact of carbon dioxide on the activity and selectivity of  
 supported palladium catalysts for carbon monoxide  
 hydrogenation)

IT 74-82-8P, Methane, preparation  
 (byproduct; impact of carbon dioxide on the activity and  
 selectivity of supported palladium catalysts  
 for carbon monoxide hydrogenation)

IT 1309-48-4, Magnesium oxide, uses 1312-81-8, Lanthanum  
 oxide 1314-23-4, Zirconium oxide, uses 1344-28-1, Aluminum oxide,  
 uses  
 (impact of carbon dioxide on the activity and selectivity of  
 supported palladium catalysts for carbon monoxide  
 hydrogenation)

IT 124-38-9, Carbon dioxide, reactions 630-08-0, Carbon monoxide,  
 reactions  
 (impact of carbon dioxide on the activity and selectivity of  
 supported palladium catalysts for carbon monoxide  
 hydrogenation)

IT 67-56-1P, Methanol, preparation  
 (impact of carbon dioxide on the activity and selectivity of  
 supported palladium catalysts for carbon monoxide  
 hydrogenation)

IT 7440-05-3, Palladium, uses  
 (supported; impact of carbon dioxide on the activity and  
 selectivity of supported palladium catalysts  
 for carbon monoxide hydrogenation)

L32 ANSWER 24 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1996:593743 HCAPLUS Full-text

DOCUMENT NUMBER: 125:225057

TITLE:  
 Noble metal Raney catalysts and preparation of  
 hydrogenated compounds using such catalysts  
 Morikawa, Kouhei; Hirayama, Shuuji; Ishimura,  
 Yoshimasa; Suyama, Yuseki; Nozawa, Tsutomu;  
 Monzen, Hiroyuki; Miura, Motoo; Marumo, Kuniomi;  
 Naito, Taketoshi

PATENT ASSIGNEE(S): Showa Denko K. K., Japan

SOURCE: Eur. Pat. Appl., 23 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.  | KIND   | DATE     | APPLICATION NO. | DATE        |
|---|--|----------|-----------------|-------------|
| EP 724908   | A1   | 19960807 | EP 1996-100127  | 19960105    |
| EP 724908   | B1   | 20020424 | <--             |             |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE |  |          |                 |             |
| JP 08187432   | A  | 19960723 | JP 1995-782     | 19950106    |
|   |  |          | <--             |             |
| JP 3560377  | B2   | 20040902 |                 |             |
| EP 934920   | A2   | 19990811 | EP 1999-108002  | 19960105    |
|   |  |          | <--             |             |
| EP 934920   | A3   | 19991222 |                 |             |
| EP 934920   | B1   | 20020724 |                 |             |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE |  |          |                 |             |
| AT 216632   | T  | 20020515 | AT 1996-100127  | 19960105    |
|   |  |          | <--             |             |
| AT 220950   | T  | 20020815 | AT 1999-108002  | 19960105    |
|   |  |          | <--             |             |
| US 6018048  | A  | 20000125 | US 1997-989157  | 19971211    |
|   |  |          | <--             |             |
| US 6215030  | B1   | 20010410 | US 1999-451146  | 19991130    |
|   |  |          | <--             |             |
| US 6245920  | B1   | 20010612 | US 1999-451145  | 19991130    |
|   |  |          | <--             |             |
| PRIORITY APPLN. INFO.:  |  |          | JP 1995-782     | A 19950106  |
|   |  |          | <--             |             |
|   |  |          | US 1996-582668  | B3 19960104 |
|   |  |          | <--             |             |
|   |  |          | EP 1996-100127  | A3 19960105 |
|   |  |          | <--             |             |
|   |  |          | US 1997-989157  | A3 19971211 |
|   |  |          | <--             |             |
| ED  | Entered STN: 05 Oct 1996   |          |                 |             |
| AB  | Noble metal (particularly Ru) Raney catalysts are used which can hydrogenate (1) aromaticity-exhibiting ring portions of organic compds., (2) carboxylic acids and their ester portions (carbonyl ester groups), (3) ring portions and carboxylic acid or their ester groups in compds. having such ring portions and carboxylic acid or their ester portions, and (4) ring portions and nitrile groups of aromatic nitrile compds. to give the corresponding hydrogenated compds. The methods allow preparation of hydrogenated compds. having hydrogenated aromatic ring portions, hydrogenated carbonyl ester groups, hydrogenated aromatic ring and carbonyl ester groups, or hydrogenated aromatic rings and nitrile groups under milder hydrogen pressure and temperature conditions than conventional catalysts. Thus, a Raney Ru/Sn catalyst was prepared and used to hydrogenate adipic acid (100% conversion) to 78% 1,6-hexanediol and 16% 6-hydroxycaproic acid. With an alumina-supported catalyst the resp. figures were 35, 1, and 30%. |          |                 |             |
| IT  | 7439-91-0, Lanthanum, uses 7440-05-3, Palladium, uses (Raney hydrogenation catalysts with improved yield and conversion)   |          |                 |             |
| RN  | 7439-91-0 HCAPLUS  |          |                 |             |
| CN  | Lanthanum (CA INDEX NAME)  |          |                 |             |

RN 7440-05-3 HCAPLUS  
 CN Palladium (CA INDEX NAME)

Pd

- IC ICM B01J025-00  
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
 Section cross-reference(s): 67  
 IT 7439-89-6, Iron, uses 7439-91-0, Lanthanum, uses  
 7439-92-1, Lead, uses 7439-96-5, Manganese, uses 7439-98-7,  
 Molybdenum, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses  
 7440-05-3, Palladium, uses 7440-15-5, Rhenium,  
 uses 7440-18-8, Ruthenium, uses 7440-20-2, Scandium, uses  
 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-32-6, Titanium,  
 uses 7440-33-7, Tungsten, uses 7440-36-0, Antimony, uses  
 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-57-5, Gold,  
 uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7440-74-6,  
 Indium, uses  
 (Raney hydrogenation catalysts with improved yield and conversion)  
 IT 1076-97-7P, 1,4-Cyclohexanedicarboxylic acid  
 (Raney hydrogenation catalysts with improved yield and conversion)  
 IT 80-04-6P, 4,4'-Isopropylidenedicyclohexanol 96-48-0P,  
 γ-Butyrolactone 98-89-5P, Cyclohexanecarboxylic acid  
 100-49-2P, Cyclohexanemethanol 105-08-8P, 1,4  
 -Cyclohexanedimethanol 108-91-8P, Cyclohexylamine, preparation  
 108-93-0P, Cyclohexanol, preparation 109-99-9P, preparation  
 110-63-4P, 1,4-Butanediol, preparation  
 110-89-4P, Piperidine, preparation 629-11-8P, 1,6  
 -Hexanediol 825-51-4P, 2-Hydroxydecalin 1191-25-9P,  
 6-Hydroxycaproic acid 1193-81-3P, 1-Cyclohexylethanol 1761-71-3P  
 2549-93-1P, 1,4-Bis(aminomethyl)cyclohexane  
 2579-20-6P, 1,3-Bis(aminomethyl)cyclohexane  
 4547-43-7P, Methyl 6-hydroxycaproate 5382-16-1P, 4-Hydroxypiperidine  
 6283-14-3P, 2-Bicyclohexylamine 7144-05-0P, 4-  
 (Aminomethyl)piperidine 13380-84-2P  
 (product; Raney hydrogenation catalysts with improved yield and  
 conversion)  
 IT 62-53-3, Aniline, reactions 65-85-0, Benzoic acid, reactions  
 80-05-7, reactions 90-41-5, 2-Aminobiphenyl 98-85-1,  
 α-Phenylethyl alcohol 100-21-0, 1,4  
 -Benzenedicarboxylic acid, reactions 100-48-1, 4-Cyanopyridine  
 101-77-9 108-31-6, Maleic anhydride, reactions 108-95-2, Phenol,  
 reactions 110-86-1, Pyridine, reactions 124-04-9, Hexanedioic  
 acid, reactions 135-19-3, 2-Naphthol, reactions 539-48-0,  
 1,4-Bis(aminomethyl)benzene 589-29-7, 1,  
 4-Benzenedimethanol 623-26-7, Terephthalodinitrile  
 626-17-5, 1,3-Benzenedicarbonitrile 626-64-2,  
 4-Hydroxypyridine 627-93-0  
 (substrate; Raney hydrogenation catalysts with improved yield and  
 conversion)

DOCUMENT NUMBER: 125:152190  
 TITLE: Manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts  
 INVENTOR(S): Boennemann, Helmut; Brijoux, Werner; Brinkmann, Rainer; Richter, Joachim  
 PATENT ASSIGNEE(S): Studiengesellschaft Kohle MbH, Germany  
 SOURCE: Ger. Offen., b22 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.  | KIND          | DATE     | APPLICATION NO. | DATE       |
|---|---------------|----------|-----------------|------------|
| DE 4443705  | A1            | 19960613 | DE 1994-4443705 | 19941208   |
| CA 2207027  | C             | 19960613 | CA 1995-2207027 | 19951207   |
| CA 2207027  | A1            | 19960613 |                 |            |
| WO 9617685  | A1            | 19960613 | WO 1995-EP4803  | 19951207   |
| W: AL, AM, AU, BB, BG, BR, BY, CA, CN, CZ, FI, GE, HU, JP, KG, KP, KR, KZ, LK, LR, LS, LT, LV, MD, MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TJ, TT, UA, UG, US, UZ, VN |               |          |                 |            |
| RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG                            |               |          |                 |            |
| AU 9643030  | A             | 19960626 | AU 1996-43030   | 19951207   |
| EP 796147   | A1            | 19970924 | EP 1995-941684  | 19951207   |
| EP 796147   | B1            | 19990721 |                 |            |
| R: CH, DE, FR, US 6090746   | GB, LI, NL, A | 20000718 | US 1997-849482  | 19970829   |
| PRIORITY APPLN. INFO.:  |               |          | DE 1994-4443705 | A 19941208 |
|   |               |          | WO 1995-EP4803  | W 19951207 |

OTHER SOURCE(S): MARPAT 125:152190

ED Entered STN: 29 Aug 1996

AB The colloids of Group VIII and Ib metals with particle size 1-10 nm were manufactured in stabilized, H<sub>2</sub>O-soluble form by reduction of metal salts in THF, alcs. or H<sub>2</sub>O, using hydrides, H, or alkali formates as reduction agents in the presence of strongly hydrophilic surfactants, e.g., betaines, fatty alc. polyglycol ethers, fatty esters of ethoxylated carbohydrates, etc. The catalysts are obtained by impregnation of (in)organic supports, e.g., activated C or La<sub>2</sub>O<sub>3</sub>, with aqueous solns. of the colloids. For example, a suspension of SB12 in THF was treated with LiHBET<sub>3</sub> at 20° under Ar, the resulting clear surfactant solution was added over 4 h to a suspension of RuCl<sub>3</sub> in THF at 40°, the mixture was stirred for 16 h at 20° to give a grayish black precipitate and a clear liquor which was siphoned off, the precipitate was washed with Me<sub>2</sub>CO/THF and dried to give colloidal Ru with particle size 1-2 nm. This was dissolved in H<sub>2</sub>O, the black solution was added to an aqueous suspension of La<sub>2</sub>O<sub>3</sub> and stirred, and the solid product was separated and dried in vacuo to give a title catalyst, stable in the air. Hydrogenation of C<sub>6</sub>H<sub>6</sub> with H(g) in aqueous NaOH in the presence of the above catalyst gave 8.5% conversion of C<sub>6</sub>H<sub>6</sub> with 78.5% selectivity for cyclohexene.

- IT 7440-05-3, Palladium, uses  
(colloidal; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- RN 7440-05-3 HCAPLUS
- CN Palladium (CA INDEX NAME)
- Fe
- IC ICM B22F009-24  
ICS B01J037-18; B01J032-00; C07B041-00; C07C013-20; C07C005-11; C07C005-08
- ICA C07C215-08; C07C219-08; C07C233-46; C07C069-22
- ICI B01J037-18, B01J023-70, B01J023-38; B01J021-18, B01J105-12
- CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
Section cross-reference(s): 45, 46
- ST metal salt redn colloid stabilization surfactant; surfactant stabilizer colloidal metal catalyst; ruthenium chloride redn lithium triethylborohydride colloid; methyl dodecyl ammonio propanesulfonate stabilizer ruthenium colloid manuf; hydrogenation catalyst ruthenium colloid manuf; lanthanum oxide support ruthenium colloid catalyst; benzene hydrogenation ruthenium catalyst manuf; cyclohexene manuf ruthenium hydrogenation catalyst
- IT Colloids  
(Group VIII and Ib metals; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT Ceramic materials and wares  
(catalyst supports; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT Carbonates, uses  
Oxides, uses  
Rare earth oxides  
Zeolites, uses  
(catalyst supports; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT Group IB elements  
Group VIII elements  
(colloidal; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT Carbohydrates and Sugars, uses  
(ethoxylated, esters with fatty acids, surfactants; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT Oxidation catalysts  
(for primary OH groups in carbohydrates, partial; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT Triple bond  
(manufacture of supported metal catalysts for cis-hydrogenation of acetylenic bond)
- IT Carbohydrates and Sugars, reactions  
(manufacture of supported metal catalysts for partial oxidation)

- of primary hydroxy groups in carbohydrates)
- IT Hydrides  
(reduction agents for metal salts; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT Betaines  
(surfactants; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT Glycosides  
(alkyl polyglycosides, surfactants; platinum colloids stabilized with hydrophilic surfactants for manufacture of supported catalysts)
- IT Surfactants  
(anionic, manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT Surfactants  
(cationic, manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT Alcohols, uses  
(fatty, alkoxylated, surfactants; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT Surfactants  
(nonionic, manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT Hydrogenation catalysts  
(selective, manufacture of supported metal catalysts for cis-hydrogenation of acetylenic bond)
- IT Catalysts and Catalysis  
(supports, manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 9002-92-0, Polyethylene glycol lauryl ether  
(Brij 35, surfactant; metal colloids stabilized with hydrophilic surfactants for manufacture of supported catalysts)
- IT 3001-63-6, Quab 426  
(Quab 426, surfactant; platinum colloids stabilized with hydrophilic surfactants for manufacture of supported catalysts)
- IT 14933-08-5, SB12 (quaternary compound)  
(SB12, surfactant; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 7440-44-0, Carbon, uses  
(activated, catalyst support; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 1312-81-8, Lanthanum trioxide  
(catalyst support; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 50-99-7, Glucose, reactions  
(catalytic oxidation to gluconic acid; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 1002-28-4, 3-Hexyn-1-ol

- (catalytic selective hydrogenation to 3-hexen-1-ol; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 7440-48-4, Cobalt, uses  
(colloidal, platinum and; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 7439-89-6, Iron, uses  
(colloidal, ruthenium and; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 7439-88-5, Iridium, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses  
(colloidal; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 71-43-2, Benzene, reactions 110-83-8, Cyclohexene, reactions  
(manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 527-07-1P, Sodium gluconate  
(manufactured by catalytic oxidation of glucose; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 544-12-7P, 3-Hexen-1-ol  
(manufactured by selective hydrogenation of 3-hexen-1-ol; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 1333-74-0, Hydrogen, uses  
(reduction agent for metal salts; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 22560-16-3, Lithium triethylborohydride  
(reduction agent for metals salts; reduction of metal salts for manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 64-18-6D, Formic acid, alkali metal salts  
(reduction agents for metals salts; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 7447-39-4, Cupric chloride, reactions 7646-79-9, Cobalt dichloride, reactions 7647-10-1, Palladium dichloride 7705-08-0, Ferric chloride, reactions 7789-43-7, Cobalt dibromide 10025-65-7, Platinum dichloride 10025-83-9, Iridium trichloride 10049-07-7, Rhodium trichloride 10049-08-8, Ruthenium trichloride 10294-27-6, Gold monobromide 13444-94-5, Palladium dibromide 13462-88-9, Nickel bromide 14284-93-6, Ruthenium acetylacetonate 16941-12-1, Hexachloroplatinic acid 30553-94-7, Diruthenium tetraacetate  
(reduction of metal salts for manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 683-10-3  
(surfactant, Rewo; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported

- heterogeneous catalysts)
- IT 9005-64-5, Polyethylene glycol sorbitan monolaurate  
(surfactant, Tween 20; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 5835-28-9D, Glycine, N-(2-hydroxyethyl)-, coco amidoethyl, sodium salts 25322-68-3D, Polyethylene glycol, ethers with sugars, esters with fatty acids 83138-08-3, Dehyton K 102961-94-4, Dehyton G 143350-33-8, Ampholyt JB 130 144113-31-5, APG 600 179800-36-3, Esterquat AU 35  
(surfactant; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)
- IT 76079-40-8D, coco amidopropyl derivs.  
(surfactants; manufacture of surfactant-stabilized mono- and bimetallic colloids as water-soluble precursors for supported heterogeneous catalysts)

L32 ANSWER 26 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1995:812773 HCAPLUS Full-text

DOCUMENT NUMBER: 123:199674

TITLE: Polymerization and depolymerization of cyclic ethers using heterogeneous catalysts

INVENTOR(S): Drysdale, Neville Everton; Herron, Norman

PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co., USA

SOURCE: PCT Int. Appl., 35 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

| PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|--|------|----------|-----------------|----------|
| WO 9502625   | A2   | 19950126 | WO 1994-US7590  | 19940714 |
|  |      |          | <--             |          |
| WO 9502625   | A3   | 19950526 |                 |          |
| W: JP, KR  |      |          |                 |          |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE |      |          |                 |          |
| EP 708794  | A1   | 19960501 | EP 1994-923920  | 19940714 |
|  |      |          | <--             |          |
| EP 708794  | B1   | 19990922 |                 |          |
| R: DE, ES, GB, NL  |      |          |                 |          |
| EP 750000  | A2   | 19961227 | EP 1996-202116  | 19940714 |
|  |      |          | <--             |          |
| EP 750000  | A3   | 19970219 |                 |          |
| EP 750000  | B1   | 20000503 |                 |          |
| R: DE, ES, GB, NL  |      |          |                 |          |
| JP 09500161  | T    | 19970107 | JP 1994-504610  | 19940714 |
|  |      |          | <--             |          |
| EP 903365  | A2   | 19990324 | EP 1998-204328  | 19940714 |
|  |      |          | <--             |          |
| EP 903365  | A3   | 19990421 |                 |          |
| EP 903365  | B1   | 20030129 |                 |          |
| R: DE, ES, GB, NL  |      |          |                 |          |
| ES 2139088   | T3   | 20000201 | ES 1994-923920  | 19940714 |
|  |      |          | <--             |          |
| ES 2147343   | T3   | 20000901 | ES 1996-202116  | 19940714 |
|  |      |          | <--             |          |
| US 5541346   | A    | 19960730 | US 1995-424918  | 19950419 |

|                        |   |          |                |             |
|------------------------|---|----------|----------------|-------------|
| US 5635585             | A | 19970603 | US 1995-424675 | 19950419    |
|                        |   |          | <--            |             |
| US 5770678             | A | 19980623 | US 1996-762813 | 19961209    |
|                        |   |          | <--            |             |
| PRIORITY APPLN. INFO.: |   |          | US 1993-93119  | A 19930716  |
|                        |   |          | <--            |             |
|                        |   |          | US 1992-964313 | B2 19921021 |
|                        |   |          | <--            |             |
|                        |   |          | US 1993-21368  | B2 19930223 |
|                        |   |          | <--            |             |
|                        |   |          | US 1993-93243  | B2 19930716 |
|                        |   |          | <--            |             |
|                        |   |          | US 1993-141160 | B2 19931021 |
|                        |   |          | <--            |             |
|                        |   |          | US 1994-198024 | B2 19940217 |
|                        |   |          | <--            |             |
|                        |   |          | EP 1994-923920 | A3 19940714 |
|                        |   |          | <--            |             |
|                        |   |          | WO 1994-US7590 | W 19940714  |
|                        |   |          | <--            |             |
|                        |   |          | US 1994-283108 | A3 19940729 |
|                        |   |          | <--            |             |
|                        |   |          | US 1995-424675 | A1 19950419 |
|                        |   |          | <--            |             |

ED Entered STN: 27 Sep 1995

AB Polymerization of specified cyclic ethers (oxiranes, oxetanes, tetrahydrofurans, oxepanes, 1,3-dioxanes, or 1,3,5-trioxanes, especially THF) is carried out using zeolites containing certain metal cations or selected metal perfluoroalkylsulfonates, e.g. (CF3SO3)3Y, which are attached to solid supports (silica, alumina, zeolites) as catalysts, in the presence of selected carboxylic anhydrides (especially Ac2O), acyl halides, and carboxylic acids having pKa <6 in H2O as accelerators. The polyethers produced are useful as monomers, flocculants, lubricants, etc. Polytetrahydrofurans are depolymerized at elevated temps. to tetrahydrofurans using selected metal perfluoroalkylsulfonates which are attached to solid supports as catalysts. For example, 98.9% THF was recovered by depolymerization of polytetrahydrofuran (Terathane 1000) using silica-supported (CF3SO3)3Yb catalyst.

IT 7439-91-0, Lanthanum, uses  
(zeolite HY-supported, catalyst; polymerization and depolymerization of cyclic ethers using heterogeneous catalysts)

RN 7439-91-0 HCAPLUS

CN Lanthanum (CA INDEX NAME)

La

IT 7440-05-3, Palladium, uses  
(zeolite-supported; polymerization and depolymerization of cyclic ethers using heterogeneous catalysts)

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

IC ICM C08G065-10  
ICS C08G065-04; C08G065-20  
CC 35-3 (Chemistry of Synthetic High Polymers)  
IT Rare earth metals, uses  
(zeolite-supported; polymerization and depolymn. of cyclic ethers using heterogeneous catalysts)  
IT Zeolites, uses  
(NH<sub>4</sub>Y, yttrium- or lanthanum-loaded, catalysts; polymerization and depolymn. of cyclic ethers using heterogeneous catalysts)  
IT 108-24-7, Acetic anhydride  
(accelerator of THF polymerization with supported yttrium triflate catalyst; polymerization and depolymn. of cyclic ethers using heterogeneous catalysts)  
IT 27532-13-4 52093-30-8, Yttrium triflate  
(alumina- or silica-supported; polymerization and depolymn. of cyclic ethers using heterogeneous catalysts)  
IT 54761-04-5, Ytterbium triflate  
(silica- and alumina-supported, catalyst; polymerization and depolymn. of cyclic ethers using heterogeneous catalysts)  
IT 7439-91-0, Lanthanum, uses 8006-73-3, Didymium  
(zeolite HY-supported, catalyst; polymerization and depolymn. of cyclic ethers using heterogeneous catalysts)  
IT 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7439-92-1, Lead, uses 7439-97-6, Mercury, uses 7439-98-7, Molybdenum, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-20-2, Scandium, uses 7440-22-4, Silver, uses 7440-24-6, Strontium, uses 7440-25-7, Tantalum, uses 7440-30-4, Thulium, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-36-0, Antimony, uses 7440-38-2, Arsenic, uses 7440-39-3, Barium, uses 7440-43-9, Cadmium, uses 7440-47-3, Chromium, uses 7440-55-3, Gallium, uses 7440-56-4, Germanium, uses 7440-57-5, Gold, uses 7440-58-6, Hafnium, uses 7440-65-5, Yttrium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-69-9, Bismuth, uses 7440-74-6, Indium, uses  
(zeolite-supported; polymerization and depolymn. of cyclic ethers using heterogeneous catalysts)

L32 ANSWER 27 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1995:788293 HCAPLUS Full-text

DOCUMENT NUMBER: 123:178069

TITLE: FTIR spectroscopy of nitric oxide adsorption on Pd/Al<sub>2</sub>O<sub>3</sub>: evidence of metal-support interaction

AUTHOR(S): Hoost, T. E.; Otto, K.; Laframboise, K. A.

CORPORATE SOURCE: Research Lab., Ford Motor Company, Dearborn, MI, 48121, USA

SOURCE: Journal of Catalysis (1995), 155(2), 303-11

CODEN: JCTLA5; ISSN: 0021-9517

PUBLISHER: Academic

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 13 Sep 1995

AB Automotive 3-way catalysts containing Pd as the only precious metal have certain advantages over current formulations consisting of various mixts. of

Pt, Pd, and Rh. NO adsorption on 2 weight percent Pd/Al<sub>2</sub>O<sub>3</sub> was studied using IR spectroscopy. Bands for NO on Pd were assigned to linear (1753-1750 cm<sup>-1</sup>), 2-fold bridged (1615-1599 cm<sup>-1</sup>), and 3-fold bridged (1580-1572 cm<sup>-1</sup>) adsorption modes. For Al<sub>2</sub>O<sub>3</sub>-supported Pd, linear NO was favored on the reduced catalyst, whereas 2- and 3-fold bridged NO were favored on the oxidized catalyst. Upon heating, a decrease in the linear form was accompanied by increases in the 2- and 3-fold bridged forms up to the highest temperature measured (300°). This result may indicate a conversion of the linear to bridged adsorption modes upon heating. NO adsorption on pure Al<sub>2</sub>O<sub>3</sub> showed a band near 1807 cm<sup>-1</sup> attributable to weak, linear adsorption. This band increased drastically upon oxidation of the Pd/Al<sub>2</sub>O<sub>3</sub> catalyst, indicating enhanced NO adsorption on Al<sub>2</sub>O<sub>3</sub> due to the presence of Pd. Conventional spillover from Pd to Al<sub>2</sub>O<sub>3</sub> was ruled out. The increased intensity is explained by adsorption of NO on Al<sub>2</sub>O<sub>3</sub> sites involved in a metal-support interaction brought about by catalyst oxidation. NO adsorption on La-promoted Pd/Al<sub>2</sub>O<sub>3</sub> was less than on the un-promoted catalyst. Possible explanations are an increase in NO dissociation and coverage of Pd by the modifier.

IT 7440-05-3, Palladium, uses  
(pure and lanthana-doped alumina-supported; temperature and lanthana doping effect on metal-support interaction in nitric oxide adsorption on alumina-supported palladium catalyst as determined by Fourier transform IR spectroscopy)

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

Pd

CC 59-3 (Air Pollution and Industrial Hygiene)

Section cross-reference(s): 67

ST nitric oxide adsorption palladium alumina catalyst; lanthana promoted palladium alumina catalyst; exhaust gas nitric oxide catalytic adsorption

IT Adsorption

Exhaust gases

(temperature and lanthana doping effect on metal-support interaction in nitric oxide adsorption on alumina-supported palladium catalyst as determined by Fourier transform IR spectroscopy)

IT 1312-81-8, Lanthana

(doping agent; temperature and lanthana doping effect on metal-support interaction in nitric oxide adsorption on alumina-supported palladium catalyst as determined by Fourier transform IR spectroscopy)

IT 7440-05-3, Palladium, uses

(pure and lanthana-doped alumina-supported; temperature and lanthana doping effect on metal-support interaction in nitric oxide adsorption on alumina-supported palladium catalyst as determined by Fourier transform IR spectroscopy)

IT 1344-28-1, Alumina, uses

(pure and lanthana-doped; temperature and lanthana doping effect on metal-support interaction in nitric oxide adsorption on alumina-supported palladium catalyst as determined by Fourier transform IR spectroscopy)

IT 10102-43-9, Nitric oxide, processes

(temperature and lanthana doping effect on metal-support interaction in nitric oxide adsorption on alumina-supported palladium catalyst as determined by Fourier transform IR spectroscopy)

L32 ANSWER 28 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1994:704098 HCAPLUS Full-text  
 DOCUMENT NUMBER: 121:304098  
 TITLE: Catalysts for the manufacture of synthesis gas  
 INVENTOR(S): Seshan, Kulathu-Iyer; Ross, Julian Richard H.;  
 Mercera, Patrick Dennis L.; Xue, Erzeng  
 PATENT ASSIGNEE(S): Mannesmann A.-G., Germany; K.T.I. Group  
 SOURCE: PCT Int. Appl., 34 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE       |
|---|------|----------|-----------------|------------|
| WO 9424042  | A1   | 19941027 | WO 1994-DE513   | 19940420   |
| <--   |      |          |                 |            |
| W: AU, BB, BG, BR, BY, CA, CN, CZ, FI, GE, HU, JP, KG, KP, KR, KZ, LK, LV, MD, MG, MN, MW, NO, NZ, PL, RO, RU, SD, SI, SK, TJ, UA, US, UZ, VN |      |          |                 |            |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG                    |      |          |                 |            |
| CA 2161132  | A1   | 19941027 | CA 1994-2161132 | 19940420   |
| <--   |      |          |                 |            |
| CA 2161132  | C    | 20031007 |                 |            |
| AU 9466759  | A    | 19941108 | AU 1994-66759   | 19940420   |
| <--   |      |          |                 |            |
| EP 695279   | A1   | 19960207 | EP 1994-914323  | 19940420   |
| <--   |      |          |                 |            |
| EP 695279   | B1   | 19970604 |                 |            |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, NL, PT, SE   |      |          |                 |            |
| BR 9406357  | A    | 19960227 | BR 1994-6357    | 19940420   |
| <--   |      |          |                 |            |
| HU 72430  | A2   | 19960429 | HU 1995-3026    | 19940420   |
| <--   |      |          |                 |            |
| CN 1121701  | A    | 19960501 | CN 1994-191860  | 19940420   |
| <--   |      |          |                 |            |
| CN 1042100  | B    | 19990217 |                 |            |
| JP 09500054   | T    | 19970107 | JP 1994-522634  | 19940420   |
| <--   |      |          |                 |            |
| AT 153987   | T    | 19970615 | AT 1994-914323  | 19940420   |
| <--   |      |          |                 |            |
| ES 2105701  | T3   | 19971016 | ES 1994-914323  | 19940420   |
| <--   |      |          |                 |            |
| PL 175047   | B1   | 19981030 | PL 1994-311201  | 19940420   |
| <--   |      |          |                 |            |
| CZ 286018   | B6   | 19991215 | CZ 1995-2761    | 19940420   |
| <--   |      |          |                 |            |
| NO 9503943  | A    | 19951004 | NO 1995-3943    | 19951004   |
| <--   |      |          |                 |            |
| US 5989457  | A    | 19991123 | US 1996-537791  | 19960124   |
| <--   |      |          |                 |            |
| PRIORITY APPLN. INFO.:  |      |          | DE 1993-4313673 | A 19930422 |
| <--   |      |          |                 |            |
|   |      |          | WO 1994-DE513   | W 19940420 |
| <--   |      |          |                 |            |

ED Entered STN: 24 Dec 1994

AB The catalyst for the manufacture of synthesis gas (CO and H<sub>2</sub>) by reacting CO<sub>2</sub> with CH<sub>4</sub> and/or other light hydrocarbons consist of an oxidic support material containing ≥80, preferably ≥90 weight% calcined ZrO<sub>2</sub> stabilized with 0.5-10 mol% of ≥1 oxides selected from Y, La, Al, Ca, Ce and Si, and coated with 0.1-4.0 weight% of ≥1 of Group VIII metals applied by phys. adsorption of their complex compds. The catalysts consist of Ni, Pt, Pd and Ni, or Pt and Pd.

IT 7440-05-3, Palladium, uses  
(catalysts, palladium-containing; catalysts for synthesis gas manufacture by reaction of carbon dioxide with methane and/or other light hydrocarbons)

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

Pd

IC ICM C01B003-40  
ICS B01J021-06; B01J023-56; B01J023-76  
CC 49-1 (Industrial Inorganic Chemicals)

ST methane carbon dioxide synthesis gas; hydrogen carbon monoxide synthesis gas; catalyst synthesis gas manuf; nickel platinum palladium catalyst

IT Catalysts and Catalysis  
(supports, sintered zirconia; catalysts for synthesis gas manufacture by reaction of carbon dioxide with methane and/or other light hydrocarbons)

IT 12013-47-7, Calcium zirconium oxide 51331-24-9, Lanthanum zirconium oxide 60800-19-3, Aluminum zirconium oxide 64417-98-7, Yttrium zirconium oxide 65453-23-8, Cerium zirconium oxide 110771-71-6, Silicon zirconium oxide ((Si,Zr)O<sub>2</sub>)  
(catalyst supports; catalysts for synthesis gas manufacture by reaction of carbon dioxide with methane and/or other light hydrocarbons)

IT 7440-06-4, Platinum, uses  
(catalysts, nickel- or palladium-containing; catalysts for synthesis gas manufacture by reaction of carbon dioxide with methane and/or other light hydrocarbons)

IT 7440-05-3, Palladium, uses  
(catalysts, palladium-containing; catalysts for synthesis gas manufacture by reaction of carbon dioxide with methane and/or other light hydrocarbons)

IT 1314-23-4, Zirconia, uses  
(monoclinic, sintered, catalyst supports; catalysts for synthesis gas manufacture by reaction of carbon dioxide with methane and/or other light hydrocarbons)

IT 1305-78-8, Calcia, uses 1312-81-8, Lanthanum oxide 1314-36-9, Ytria, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 11129-18-3, Cerium oxide  
(zirconia catalyst supports stabilized with; catalysts for synthesis gas manufacture by reaction of carbon dioxide with methane and/or other light hydrocarbons)

L32 ANSWER 29 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1987:183292 HCAPLUS Full-text  
DOCUMENT NUMBER: 106:183292  
TITLE: Sulfur tolerance of methanol synthesis catalysts:

AUTHOR(S): modeling of catalyst deactivation  
 Radovic, Ljubisa R.; Vannice, M. Albert  
 CORPORATE SOURCE: Dep. Chem. Eng., Pennsylvania State Univ.,  
 University Park, PA, 16802, USA  
 SOURCE: Applied Catalysis (1987), 29(1), 1-20  
 CODEN: APCADI; ISSN: 0166-9834  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

ED Entered STN: 29 May 1987

AB A series of supported Pd and com. Cu-based catalysts was tested for MeOH synthesis activity and activity maintenance in the presence of 2 ppm H<sub>2</sub>S in a differential fixed-bed reactor operated at 523 K and 1.5 MPa. S breakthrough curves were obtained by monitoring the H<sub>2</sub>S concentration in both the feed and exit streams using a gas chromatograph with a flame photometric detector. A comparison of the resistance to S poisoning of the various catalysts is given, using a qual. examination of activity maintenance plots as well as a math. model for catalyst deactivation. The rates of deactivation of the Cu-based catalysts in the absence or presence of H<sub>2</sub>S were very similar, with 70-90% of the initial activity being lost during 300 h on stream. No H<sub>2</sub>S breakthrough was observed with these catalysts, whereas the Pd catalysts exhibited breakthroughs after 10-30 h on stream. The Pd catalysts retained a much higher residual activity in the presence of H<sub>2</sub>S. The Szepe-Levenspiel (1971) approach, with a modification recently proposed by G. A. Fuentes (1985) for poison-tolerant catalysts, gave meaningful quantification of S resistance of Pd-based catalysts.

IT 7440-05-3, Palladium, uses and miscellaneous  
 (catalysts from oxide support and, for hydrogenation of  
 carbon monoxide, deactivation of, by hydrogen sulfide)

RN 7440-05-3 HCAPLUS

CN Palladium (CA INDEX NAME)

Pd

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
 Section cross-reference(s): 51

ST palladium support catalyst deactivation  
 sulfur; methanol synthesis catalyst deactivation sulfur; copper  
 catalyst deactivation sulfur

IT Rare earth oxides  
 (catalysts from palladium and, for hydrogenation of  
 carbon monoxide, deactivation of, by hydrogen sulfide)

IT Hydrogenation catalysts  
 (supported palladium and copper-based, for  
 carbon monoxide, deactivation of, by hydrogen sulfide)

IT 7440-05-3, Palladium, uses and miscellaneous  
 (catalysts from oxide support and, for hydrogenation of  
 carbon monoxide, deactivation of, by hydrogen sulfide)

IT 1312-81-8, Lanthanum sesquioxide 1313-97-9, Neodymium  
 sesquioxide 1314-37-0 7440-44-0, Carbon, uses and miscellaneous  
 12061-16-4 12064-62-9

(catalysts from palladium and, for hydrogen of carbon  
 monoxide, deactivation of, by hydrogen sulfide)

IT 7783-06-4, Hydrogen sulfide, uses and miscellaneous  
 (deactivation by, of supported palladium and  
 copper-based catalysts)

IT 630-08-0, Carbon monoxide, reactions

(hydrogenation of, on supported palladium and  
copper-based catalysts, effect of hydrogen sulfide)

L32 ANSWER 30 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1985:51645 HCAPLUS Full-text  
DOCUMENT NUMBER: 102:51645  
TITLE: Catalyst for selective hydrogenation of multiply  
unsaturated organic compounds  
INVENTOR(S): Stadler, Karl Heinz; Kochloefl, Karel  
PATENT ASSIGNEE(S): Sued-Chemie A.-G., Fed. Rep. Ger.  
SOURCE: Ger. Offen., 24 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE        |
|------------------------|------|----------|-----------------|-------------|
| DE 3320388             | A1   | 19841206 | DE 1983-3320388 | 19830606    |
|                        |      |          | <--             |             |
| EP 127723              | A2   | 19841212 | EP 1984-100626  | 19840123    |
|                        |      |          | <--             |             |
| EP 127723              | A3   | 19850619 |                 |             |
| EP 127723              | B1   | 19871007 |                 |             |
| R: DE, FR, GB, IT      |      |          |                 |             |
| US 4613714             | A    | 19860923 | US 1985-785472  | 19851008    |
|                        |      |          | <--             |             |
| PRIORITY APPLN. INFO.: |      |          | DE 1983-3320388 | A 19830606  |
|                        |      |          | <--             |             |
|                        |      |          | US 1984-614638  | A3 19840528 |
|                        |      |          | <--             |             |

OTHER SOURCE(S): MARPAT 102:51645

ED Entered STN: 09 Feb 1985

AB A supported catalyst for the selective hydrogenation of multiply unsatd. organic compds., (especially of olefin-diolefin mixts. where a fraction of the diolefin has an isolated double bond) consists of a  $\geq 1$  Group VIII element on a support from an n-type semiconductor oxide from  $\geq 1$  elements selected from Group IVB, VB, VIB, Ce, or Th or a support of MIIMIOx (MI = an element as defined above; MII = an alkaline earth or a different MI element; x = a number representing the saturation bonding of MI and MII) with a H<sub>2</sub> chemisorption capacity defined as the atomic ratio between the chemisorbed H<sub>2</sub> and the surface MI and MII atoms of 0.6-1.0. Thus, TiO<sub>2</sub> (a mixture of 70% anatase and 30% rutile) was impregnated with PdCl<sub>2</sub>, the impregnated support was reduced in H<sub>2</sub> for 3 h at 675-725 K, the catalyst was ground, the powder was mixed with AlO(OH) filler in a 1:1 ratio, Al and Ti stearate 3-4 weight% was added, and the powder mixture was pressed in catalyst plates. This catalyst was used to rapidly hydrogenate a mixture of 1-hexene and 3,5-hexadiene at 348 K under 5 bar.

IT 7440-05-3, uses and miscellaneous  
(catalysts, for hydrogenation of olefin-diolefins mixts.)  
RN 7440-05-3 HCAPLUS  
CN Palladium (CA INDEX NAME)

IC B01J023-54; C07C005-05; C07C011-02  
 CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)  
 Section cross-reference(s): 45  
 IT Hydrogenation catalysts  
     (Group VIII metals on semiconductor supports, for  
     olefin-diolefin mixts.)  
 IT Group VIII elements  
     (catalysts, on oxide supports, for hydrogenation of  
     olefin-diolefin mixts.)  
 IT Platinum-group metals  
     (catalysts, on semiconductor oxide supports for  
     hydrogenation of olefin-diolefin mixts.)  
 IT 24623-77-6  
     (catalyst support from, for selective hydrogenation of  
     olefin-diolefin mixts.)  
 IT 7664-38-2, uses and miscellaneous 7681-49-4, uses and miscellaneous  
     (catalysts from Group VIII metals on support impregnated  
     with)  
 IT 7440-05-3, uses and miscellaneous  
     (catalysts, for hydrogenation of olefin-diolefins mixts.)  
 IT 7647-10-1  
     (in impregnation of titania supports for hydrogenation  
     catalyst preparation)

L32 ANSWER 31 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1971:513211 HCAPLUS Full-text

DOCUMENT NUMBER: 75:113211

ORIGINAL REFERENCE NO.: 75:17867a,17870a

TITLE: Supported palladium catalysts

INVENTOR(S): Morikawa, Kiyoshi; Echigoya, Etsuro; Shirasaki,  
 Takayasu; Furuoya, Itsuo

SOURCE: Brit., 14 pp.  
 CODEN: BRXXAA

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| GB 1242680             |      | 19710811 | GB 1968-39085   | 19680815 |
|                        |      |          | <--             |          |
| DE 1792291             |      |          | DE              |          |
| JP 46041283            |      | 19710000 | JP              |          |
|                        |      |          | <--             |          |
| JP 46041285            |      | 19710000 | JP              |          |
|                        |      |          | <--             |          |
| US 3629145             |      | 19711221 | US              | 19680815 |
|                        |      |          | <--             |          |
| PRIORITY APPLN. INFO.: |      |          | JP              | 19670816 |
|                        |      |          | <--             |          |
|                        |      |          | JP              | 19670908 |
|                        |      |          | <--             |          |

ED Entered STN: 12 May 1984

AB A hydrogenation catalyst is prepared by treating an amorphous solid acid carrier containing acid sites with a basic aqueous solution of a Pd-NH3 complex or a Pd lower alkylamine complex. The treated carrier is then dried, treated with an aqueous solution of an oxyacid and then subjected to thermal treatment. The carrier may be SiO2, Al2O3, SiO2-Al2O3, activated clay, SiO2-

Al<sub>2</sub>O<sub>3</sub>-ZrO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>-B<sub>2</sub>O<sub>3</sub>, or SiO<sub>2</sub>-MgO. Thus, 1000 parts by volume aqueous NH<sub>3</sub> solution were added to 4 parts by weight PdCl<sub>2</sub> dissolved in 100 parts by volume H<sub>2</sub>O, and H<sub>2</sub>O added to make the whole up to 10,000 parts by volume of a solution containing 0.00451 mequiv/ml Pd-NH<sub>3</sub> complex. Then 50 parts by weight powdered SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> containing 13% by weight Al<sub>2</sub>O<sub>3</sub>, sp. surface area 400 m<sup>2</sup>/g, acidity 1.0 mequiv/g, was mixed with 335 parts by volume of the above solution. The solid was filtered, heated at 300-500° for 2 hr, mixed with an aqueous solution containing 50 mequiv Th nitrate, filtered, heated again to yield 50 parts by weight catalyst containing 0.03 mequiv/g Pd ions, and 1.00 mequiv/g Th ions attached to the acid sites of the carrier. The catalyst showed an activity of 44% in the dehydrogenation of cyclohexane to benzene. With a catalyst prepared in the same manner except Th was not used 27% of the cyclohexane was dehydrogenated to benzene.

IT 7440-05-3, uses and miscellaneous  
(catalysts, for hydrogenation of benzene, reversible)  
RN 7440-05-3 HCAPLUS  
CN Palladium (CA INDEX NAME)

Pd

IT 7439-91-0, uses and miscellaneous  
(palladium catalysts containing, for dehydrogenation of cyclohexane)  
RN 7439-91-0 HCAPLUS  
CN Lanthanum (CA INDEX NAME)

La

IC B01J  
CC 67 (Catalysis and Reaction Kinetics)  
ST palladium supported catalyst;  
hydrogenation supported catalyst  
IT Kinetics of hydrogenation  
(of benzene, with stable palladium catalysts)  
IT Hydrogenation catalysts  
(palladium-promoter-supports, for benzene)  
IT Dehydrogenation catalysts  
(palladium-promoter-supports, for cyclohexane)  
IT 1303-86-2, uses and miscellaneous 1309-48-4, uses and miscellaneous  
1314-23-4, uses and miscellaneous  
(catalyst supports, for palladium hydrogenation catalysts)  
IT 7440-05-3, uses and miscellaneous  
(catalysts, for hydrogenation of benzene, reversible)  
IT 7439-91-0, uses and miscellaneous  
(palladium catalysts containing, for dehydrogenation of cyclohexane)  
IT 7440-29-1, uses and miscellaneous  
(palladium catalysts containing, for hydrogenation)  
IT 7429-90-5, uses and miscellaneous 7440-45-1, uses and miscellaneous  
(palladium catalysts containing, for hydrogenation of benzene)

L32 ANSWER 32 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1951:25891 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 45:25891  
 ORIGINAL REFERENCE NO.: 45:4500c-d  
 TITLE: Conversion of mole percent into weight percent  
 AUTHOR(S): Wittig, Franz E.  
 CORPORATE SOURCE: Max Planck-Inst., Stuttgart, Germany  
 SOURCE: Zeitschrift fuer Metallkunde (1950), 41,  
 395-8  
 CODEN: ZEMTAE; ISSN: 0044-3093  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable  
 ED Entered STN: 22 Apr 2001  
 AB Equations, tables, and nomographs are given.  
 CC 2 (General and Physical Chemistry)  
 IT Weight percentages  
 (mole-percentage conversion to)

L32 ANSWER 33 OF 33 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1944:41342 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 38:41342  
 ORIGINAL REFERENCE NO.: 38:6179h  
 TITLE: Nomogram to convert weight and mole percentages in  
 binary systems  
 AUTHOR(S): Benenati, Robert F.; Harrison, John G., Jr.  
 SOURCE: Journal of Industrial and Engineering Chemistry  
 (Washington, D. C.) (1944), 36, 934-5  
 CODEN: JIECAD; ISSN: 0095-9014  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable  
 ED Entered STN: 16 Dec 2001  
 AB Unavailable  
 CC 2 (General and Physical Chemistry)  
 IT Weight percentages  
 (nomograph for conversion of mole percentages and, in binary  
 systems)

=> d his nofile

(FILE 'HOME' ENTERED AT 10:14:58 ON 06 DEC 2007)

FILE 'HCAPLUS' ENTERED AT 10:15:09 ON 06 DEC 2007

L1 1 SEA ABB=ON PLU=ON US20060229478/PN  
SEL RN

FILE 'REGISTRY' ENTERED AT 10:15:22 ON 06 DEC 2007

L2 21 SEA ABB=ON PLU=ON (100587-94-8/BI OR 1333-74-0/BI OR  
14024-64-7/BI OR 144665-26-9/BI OR 5593-70-4/BI OR  
617-86-7/BI OR 68413-68-3/BI OR 694-53-1/BI OR 74-85-1/BI  
OR 74-86-2/BI OR 7439-91-0/BI OR 7440-03-1/BI OR 7440-05-3/  
BI OR 7440-09-7/BI OR 7440-21-3/BI OR 7440-32-6/BI OR  
7631-86-9/BI OR 7732-18-5/BI OR 7757-79-1/BI OR 7803-62-5/B  
I OR 998-29-8/BI)  
L3 1 SEA ABB=ON PLU=ON 7439-91-0/RN  
L4 1 SEA ABB=ON PLU=ON 7440-05-3/RN  
L5 1 SEA ABB=ON PLU=ON 7440-32-6/RN  
E POTASSIUM/CN  
L6 1 SEA ABB=ON PLU=ON POTASSIUM/CN

FILE 'HCAPLUS' ENTERED AT 10:17:55 ON 06 DEC 2007

L7 205877 SEA ABB=ON PLU=ON L3 OR LANTHANUM OR LA  
L8 269904 SEA ABB=ON PLU=ON L4 OR PALLADIUM OR PD  
L9 666224 SEA ABB=ON PLU=ON L5 OR TI OR TITANIUM OR TITAN  
L10 1846175 SEA ABB=ON PLU=ON L6 OR K OR POTASSIUM  
L11 8129 SEA ABB=ON PLU=ON L8 AND L7  
L12 3563 SEA ABB=ON PLU=ON L8 AND L9 AND L10  
L13 10249 SEA ABB=ON PLU=ON L11 OR L12  
L14 1 SEA ABB=ON PLU=ON L13 AND L1  
L15 3048 SEA ABB=ON PLU=ON L13 AND CAT/RL  
L16 5 SEA ABB=ON PLU=ON L15 AND (WEIGHT OR WT) (A) (PERCENT? OR  
%)  
L17 53031 SEA ABB=ON PLU=ON L8(L)CAT/RL  
L18 2686 SEA ABB=ON PLU=ON L17 AND L13  
L19 1427 SEA ABB=ON PLU=ON L18 AND SUPPORT?  
E WEIGHT PERCENT/CT  
E WEIGHT /CT  
L20 2 SEA ABB=ON PLU=ON "WEIGHT PERCENTAGES"+PFT,NT/CT  
L21 20538 SEA ABB=ON PLU=ON WEIGHT+PFT,NT/CT  
L22 3 SEA ABB=ON PLU=ON L18 AND (WEIGHT OR WT#) (3A) (PERCENT?  
OR %)  
L23 306 SEA ABB=ON PLU=ON L18 AND (WEIGHT OR WT#)  
L24 3 SEA ABB=ON PLU=ON L18 AND 0.05-2.0  
L25 613 SEA ABB=ON PLU=ON L18 AND (0.05 OR 0.06 OR 0.07 OR 0.08  
OR 0.09 OR 1.0 OR 1.01 OR 1.02 OR 1.03 OR 1.04 OR 1.05 OR  
1.06 OR 1.07 OR 1.08 OR 1.09 OR 1.1 OR 1.2 OR 1.3 OR 1.4  
OR 1.5 OR 1.6 OR 1.7 OR 1.8 OR 1.9 OR 2.0)  
L26 333 SEA ABB=ON PLU=ON L25 AND SUPPORT?  
L27 6 SEA ABB=ON PLU=ON L26 AND DEV/RL  
L28 147 SEA ABB=ON PLU=ON L26 AND RACT/RL  
L29 0 SEA ABB=ON PLU=ON L28 AND PERCENT?  
L30 29 SEA ABB=ON PLU=ON L28 AND SUPPORT? CATALYST?  
L31 44 SEA ABB=ON PLU=ON L16 OR L20 OR L22 OR L24 OR L27 OR L29  
OR L30  
L32 33 SEA ABB=ON PLU=ON L31 AND (1840-2003)/PRY,AY,PY  
L33 1 SEA ABB=ON PLU=ON L32 AND